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A HISTORY

OF THE

EPIDEMIC FEVER,

WHICH PREVAILED IN

BRIDLINGTON AND THE NEIGHBOURHOOD,

IN THE YEARS 1818 AND 1819,

BY HUMPHRY SANDWITH,
Surgeon, Bridlington.

ALSO,

OBSERVATIONS

IN

MEDICINE AND SURGERY,

BY

THOMAS SANDWITH,
Surgeon, Beverley.

London:
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TO JOHN SIMPSON, M.D.

MALTON.

Dear Sir,

As most of the following pages are intended to illustrate principles, which you have so long pursued in practise with success, we beg leave to dedicate this work to you; and are happy in having the privilege of prefixing your name to our writings, and appearing before the public with your sanction and support.

It affords us still greater gratification to avail ourselves of this opportunity, thus publicly, to acknowledge the obligations we owe to you, as well for many disinterested acts of kindness, conferred upon us, as for the great benefits

we have derived from your conversations and correspondence.

We remain, dear Sir,

With the sincerest esteem and respect,

Your very obedient Servants,

THO^{S}. & HUMPH^{Y}. SANDWITH.

Beverley, September 9th, 1820.

A

SUCCINCT ACCOUNT

OF THE

Epidemic Contagious Fever,

PREVAILING AT

Bridlington, Bridlington Quay, and the Neighbourhood,

IN THE YEARS 1818 AND 1819.

"That which is recorded is better than that which hath no pens but the tongues, no books but the ears of men."—HOOKER.

BY HUMPHRY SANDWITH, SURGEON.

INTRODUCTORY REMARKS.

In presenting the public with the results of my experience, it is impossible not to feel their insignificance, when compared with those rich masses of medical facts and reasonings, recently accumulated by the diligence of those, who presiding over Fever Institutions have the most extensive opportunities of information. Nevertheless some imperfection attaches even to Hospital practice; for the patients are all of one class of society, and seldom apply early for relief. In fact, the greater mortality of Fever in private than in hospital practice proves that a material difference

exists in the subjects of the disease. It is therefore desirable that Inquiries into Fever, grounded on observations drawn from private sources should be multiplied in proportion to their comparative value. Other reasons might be adduced to shew the utility of accumulating memorials of the Epidemics of particular situations. It is in this way that the varieties of Fever are discovered, materials collected for the higher office of classification, and future inquirers benefited by the labours of their predecessors.

So great an obscurity has always attached itself to the nature of Fever, that not a few have confessed the hopelessness of ever arriving at satisfactory conclusions on the subject. The late enlightened Dr. Percival has asserted it to be his opinion,

that, "the science of Disease is hardly yet sufficiently advanced to compass the pathology of Fever." Admissions of this kind leave ample scope for further investigation. It is not my intention by these remarks to excite an idea, that the following pages contain some important discovery. The simple aim of the concluding observations on the nature of Fever, is to present an outline of all those detached improvements in particular departments of the subject, which have been contributed by others, and which, if not adequate to the solution of all the phenomena, at least account for many.

Actuated by motives very similar to those which appear to have influenced Mr. Hey in publishing his very valuable account of the Puerperal Fever, which prevailed some

years ago at Leeds, I have thought too, that "there is no better way of arriving at truth in difficult and obscure cases, than by diligently observing the juvantia and lædentia, what does good and what does harm;" and "faithfully to relate the bad as well as the good success of my practice."

That the different parts of the united kingdom have in succession experienced the visitations of Fever, is too well known to the profession to need any formal historical illustration. And without advocating one explanation of the origin of the National Epidemic in preference to another, it is of importance to remark its connexion both with political adversity and a deficiency in the productions of nature in the years 1816 and 1817. Numerous facts might be adduced to shew the strength of

its inherent principle of contagion, by which, when the disease was once established, it amplified and extended itself in every direction, and to which, from a careful inquiry into the circumstances of its introduction, I am induced to attribute the origin of the Bridlington Epidemic. Originating from contagion at the Quay, its ultimate invasion of Bridlington and the surrounding villages, (among which latter indeed it never became general) is satisfactorily explained on the same supposition.

It might be important, before entering upon the history of this Epidemic, to announce the extent to which at the same time it prevailed on or near the Eastern coast. This desideratum I both feel and regret my inability to supply, at least to an

extent commensurate with my wishes; my correspondence and means of information having been inadequate to command materials for the full elucidation of the subject. The reader however is referred to three separate and valuable accounts in the Appendix, which were contributed by my brother and my friends, Messrs. Dunn and Hardcastle. To these I beg leave to direct his attention, as satisfactory proofs of the existence of contemporary Epidemics in the neighbourhood, and as independant testimony of the truth of the principles attempted to be established in these pages.

DESCRIPTION

OF THE

BRIDLINGTON EPIDEMIC.

SITUATION, state of the weather, and other external circumstances, from their known power to modify disease, must of necessity be named, in union with internal evidences, to develope the nature and true character of the Epidemic to be described. Brief mention of the former shall precede a description of the latter. In conclusion will be exhibited the effects of Treatment, as another source of evidence illustrative of the nature of the disease.

I.

EXTERNAL CIRCUMSTANCES.

The town of Bridlington stands in lat. 54° N. lon. 0° 5′ W. on the eastern coast, in the county of York, one mile from the sea. It consists

principally of two long streets, at a right angle with each other; with the addition of numerous petty yards and allies. The country around is open, free from marshes, and well cultivated. Its site is upon the southern declivity of a small elevation; southward of which expands a pleasant valley, watered by a considerable rivulet, and becoming more and more picturesque and beautiful, as it stretches westward to Boynton and Thorpe: while northward the country rises by a gentle ascent for more than a mile, till it is lost in the Wolds. The town in short is environed with these hills, which surround it from the sea on the north to the point of south-west, from which to due south lies the low flat land of Holderness. The Wold land consists of chalk-rock, with a thin covering of soil; and, as it approaches the sea, the chalk is lost under strata of chalk-gravel and clay. The town is supplied with indifferent water. The upper springs, which are much worse than the lower, lie within a few yards of the surface, filling the cellars with water in wet weather, and are soon exhausted in summer. The ne-

ther springs, which are better tasted, though rather hard, lie at a depth of from eighteen to fifty or sixty feet. The stratum of chalk-gravel under-lies the town. Its streets are narrow, but on the whole well drained and clean.

The air is sharp and clear, with the exception of occasional sea fogs. High winds, for the last two years, prevailed chiefly from the west and north-west; but in former years more frequently from east, north-east, and north. In spring the wind often blows from the east, with but little intermission, for many weeks, considerably retarding the progress of vegetation. During its more transient visitations last spring (1819,) I observed its pernicious effects on the hedges and fruit trees, which it blasted on their eastern aspect, as though scorched by lightning. During the autumnal months too we were revisited by severe gales blowing unabatedly from north and north-east. The moist air from the sea in winter mitigates the rigour of the frost, and very soon dissolves the snow, unless it fall to a considerable depth. The sultriness of summer is corrected by the cooling breezes, which

blow from the ocean: in fact the thermometer stands lower in summer and higher in winter here than in the more inland parts.

The Port or Quay is about a mile from Bridlington on the south-east, standing immediately on the verge of the cliff, which consists of the most perishable materials. From the encroachments of the sea, both in a northern and southern direction, the town is gradually assuming an insular form. The streets are spacious, and the houses for the most part new and well-built; and it is watered by an invaluable spring, discovered in 1811 by the late intelligent and benevolent Collector of the Customs, Mr. Milne. This spring ebbs and flows with the tide, beginning to flow when the latter has risen to within about four feet of the level of the bore, and continuing the discharge of a regular stream, until the tide has fallen to the same point. A reservoir has been made, and a pump affixed for the purpose of obtaining a regular supply. So great is the purity of this water, that its specific gravity, according to Mr. Hume of Long-acre, is 1001, distilled

water being considered as 1000. "The water from the Bridlington ebbing and flowing stream contains per gallon about seventeen cubic inches of carbonic acid gas and the following materials, namely:—

	grains
Of carbonate of lime	9,625
Of muriate of lime	3,750
Of silex, & a smaller portion of oxide of iron	125
	13,500"

This is almost the only water in use at the Quay; and it is much used at Bridlington for culinary purposes.

As to the population of Bridlington and the Quay, Capper in his Topographical Dictionary states, that in 1806 there were 3130 inhabitants; of whom 1031 were returned as being employed in trade and manufactures: the remainder are chiefly sea-faring people. Colquhoun gives it in 1811 as follows:—

Houses.	Inhabitants.	Males.	Females.	Houses building.
869	3,741	1,706	2,035	caret.

The state of the weather, during the period embraced by the present enquiry, ought next to be adverted to; and the electric conditions

of the atmosphere, its weight, comparative humidity or dryness, its temperature, state of agitation, together with the winds which were chiefly prevalent, should be exhibited. I regret that neither my diligence nor opportunities have enabled me to give that completion to this part of the subject, which its importance demands. For in this direction of our researches much remains to be explored. The facts, however, which I have collected on this point, I shall leave on record, without presuming to attempt any regular or systematic application of them to the subject.

The year 1818 was unusually benign through all its seasons. In the spring the east wind was almost unknown; and in winter the weather was so extremely mild, that the sea was seldom violently agitated. Contrary to the course of the two preceding years, the fruits ripened early and acquired their wonted flavour. The hay-making season was favourable; and the harvest proved abundant, and was well got in. The Quay, as a watering-place, was much resorted to, visitors flocking to the sea-side as

early as June, and continuing to a very late period. The mild and serene winter was peculiarly favourable to the pursuits of the sportsman, and the more perilous avocation of the mariner. As to the electric condition of the atmosphere, though thunder and lightning had been frequent and severe the preceding year, and the summer cold, in 1818 thunder was only heard twice and at a distance, and lightning seen only once. There were only two slight showers of snow in this neighbourhood, though much more fell further inland. As to the winds, we had only occasional and very temporary visitations from the south-east; while west and south-west winds prevailed throughout the year. Very little rain comparatively fell at any time; and the sun shone in a cloudless sky. The following Table will shew the temperature of the atmosphere during the whole year. The register was kept within two miles of Bridlington, from which the following average is derived.

State of the Thermometer in each Week during the Year 1818.

(The account taken at two P. M.)

Week commencing.	Mean temperature.	Week commencing.	Mean temperature.
January		June	
4	38 3/7	7	69 2/7
11	44 2/3	14	66 4/7
18	39 4/7	21	67 4/7
25	40 3/7	28	67 2/7
February		July	
1	34 4/7	5	69 3/7
8	36	12	70
15	41 6/7	19	75
22	41 3/7	26	70 1/3
March		August	
1	40	2	69
8	40 3/7	9	64 2/7
15	47 4/7	16	61 4/7
22	41 4/7	23	66 6/7
29	44 2/7	30	68 2/7
April		September	
5	46	6	59
12	45 6/7	13	60 5/7
19	44 3/7	20	61
26	53 4/7	27	60 5/7
May		October	
3	53 1/3	4	55 4/7
10	54 6/7	11	59 2/7
17	54	18	55 3/7
24	56 2/7	25	56 2/7
31	57		

Week commencing.	Mean temperature.	Week commencing.	Mean temperature.
November		December	
1	55 3/7	6	45 3/7
8	51 1/7	13	44 1/2
15	48 6/7	20	31 1/3
22	49 1/7	27	35 2/5
29	50 1/7		

The year 1819 resembled its predecessor in the benignity of its earlier seasons. The spring was mild and genial; and the summer was exceedingly fine. The east wind annoyed us in the spring rather more than in the preceding year, yet less than usual. The following sketch will shew to what extent the east winds prevailed in April and part of May.

April	Winds.	Weather.	April	Winds.	Weather.
1	NNE	fair	14	S	fair
2	WSW	fine	15	SSE	cloudy
3	NNE	fine	16	SE–E	rain A.M.
4	NNE	fair	17	S–SSE–SW	showery
5	N and E	fair	18	WSW–W	fair
6	SE	clear & cold	19	W	cloudy
7	SE–SSE	cloudy	20	W	mild
8	SE	milder	21	SSW–S	stormy
9	E–NE	fine	22	SE	clear
10	NW	strong winds	23	ESE	clear
11	W	drops of rain	24	E	cloudy & stormy
12	E	showery	25	E–E by S	clear
13	SE–SW	cloudy, rain P.M.	26	ESE	cloudy

April	Winds.	Weather.
27	ESE	cold & clear
28	SE–SSE	dry
29	SE	dry
30	ESE	breezy.
May		
1	E	fair
2	E by S	fair
3	E	strong gales
4	E	strong gales
5	E	strong gales
6	SE	cloudy & rainy
7	SE	fair
8	ESE	fine
9	ESE–WNW	fine, rain P.M.
10	SE	showery P.M.
11	NW	cloudy.

Excepting the last week in August, in which we had a severe storm of thunder and lightning, succeeded by intense coldness, the summer continued remarkably fine, vying in every particular with the summer of 1818. Autumn set in under the same benign auspices, the weather continuing warm and genial up to the 5th day of October. We had very rough weather however during the latter half of Autumn, and a snow-storm visited us much earlier than usual. In the third week of October the wind blew so strong from the north, that a very large fleet took shelter in the Bay; several ships were driven from their anchorage, and two stranded on the shore. In October also we had frequent showers of rain and hail, with occasional flashes of lightning. November was cloudy and show-

ery, the wind blowing by turns from every quarter. December was characterized by an equal variableness in the winds, with frequent falls of snow. The following Table will shew the average temperature of the atmosphere during the whole year.

(The account taken between two and three o'clock P. M.)

Week commencing.	Mean temperature.	Week commencing.	Mean temperature.
January		May	
3	41 2/7	2	57 3/7
10	44 1/7	9	62 5/7
17	38 3/7	16	60 5/7
24	39 5/6	23	52 5/7
31	37 2/5	30	61 5/7
February		June	
7	43 3/7	6	65 2/7
14	44 1/7	13	61 1/3
21	41 2/3	20	
28	43 6/7	27	63 1/2
March		July	
7	50 1/7	4	69 1/3
14	47 5/7	11	67 1/3
21	48	18	67 3/7
28	56 6/7	25	69 6/7
April		August	
4	53 1/7	1	67 3/7
11	55 1/7	8	71 5/7
18	50 4/7	15	72 2/7
25	52	22	70 3/7
		29	64 5/7

Week commencing.	Mean temperature.	Week commencing.	Mean temperature.
September		November	
5	$68\frac{5}{7}$	7	$46\frac{1}{7}$
12	$63\frac{2}{7}$	14	43
19	$57\frac{4}{7}$	21	$37\frac{2}{7}$
26	$67\frac{3}{7}$	28	$42\frac{3}{7}$
October		December	
3	57_{7}	5	$34\frac{2}{5}$
10	$59\frac{6}{7}$	12	$36\frac{2}{7}$
17	50	19	$40\frac{5}{7}$
24	$43\frac{6}{7}$	26	$29\frac{1}{2}$
31	$47\frac{2}{7}$		

II.

INTERNAL EVIDENCES.

The account of symptoms, in other words, the history of the nature of the Internal Evidences of the Epidemic, shall comprehend, 1st, Those cases, in which the nervous system suffers merely from the agency of general fever. 2ndly, Those examples of fever, in which the nervous system is thrown into additional disorder from its intensely sympathizing with inflammation or congestion in other important organs, to the assumption in some cases of similar actual disease. 3rdly, The phenomena exhibited in those cases, in which the nervous system appears to be essentially implicated in an idiopathic and primary inflammation or congestion, with occasional simultaneous or subsequent disturbances elsewhere.

FIRST SPECIES, OR SIMPLE TYPHUS.

As in the division of organized nature into

the animal and vegetable kingdoms, the two classes of objects fall into each other by the most imperceptible gradations, so when we attempt to class the varieties of Fever, we find cases holding a place so exactly intermediate that it is difficult correctly to assign to them their situation. In constructing the Tables, I was embarrassed by a difficulty of this kind in disposing of some of the cases of the present variety. I allude to those, which I have denominated "Simple Typhus bordering on the Inflammatory." These may with so much justice be considered mild cases of the Inflammatory Species, that, on that account, I shall first exhibit the purer examples of Simple Typhus, and then, prior to the history of the strictly Inflammatory Species, subjoin the description of its more aggravated forms, namely, those bordering on Inflammation. The description of this variety will thus form a sort of connecting link in the chain, which unites in one genus the pure forms of Simple and Inflammatory Typhus.

Thirty-four examples of Simple Typhus oc-

curred to my observation; of which eleven assumed its more aggravated character.

It is needless to describe at length a variety of Fever, familiar to the most common observer. The patient was first seen listless and inactive, pale and cold, and creeping, with his elbows resting on his knees, almost into the fire. He soon became irritable and fretful, or desponding; if a child, he had no relish for play, if an adult, for his usual avocations. His appetite failed; as fever arose, his thirst increased, which in truth was a tolerably correct standard of the degree of excitement. Sleep became liable to frequent interruption, the patient being either roused by terrifying dreams, or awaking from the mere urgency of his thirst. The bowels were in general constipated, and in some instances yielded with uncommon reluctance to cathartics. Their obedience to mild aperients, and eventually their spontaneous operation, were among the first harbingers of approaching convalescence. In case (10) there was more than usual obstruction, with a thoroughly vitiated state of the alvine secretions, as procured by

purgation after the manner of Hamilton. In several instances we had considerable pain referred to the abdomen. Diarrhœa was an occasional and rare symptom, as was also a soft and perspiring skin. As high temperature and constipation were in general united, so in a few cases were diarrhœa and a relaxed surface. There was not one instance of sickness amounting to vomiting. The tongue, occasionally dry, was in general coated with a moist white fur, excepting its tip and edges. The pulse was usually much accelerated, and the temperature considerable, with frequent flushings of the cheeks. In one instance there were petechiæ, resembling flea-bites. Sometimes there was frequent, short, irritative cough, without eventual expectoration; at other times we had catarrhal symptoms, cough with expectoration, and fugitive pains in the sternum. In some of the smartest cases there was great head-ache and even obtuseness in the sense of hearing, together with epistaxis in two instances. Fretfulness and dejection marked the irritation of the nervous system. Insomnium was usual;

and a light delirium at night, resembling the reveries of a highly imaginative mind, was by no means uncommon. Pain in the back and limbs was not often wanting.

This variety of Fever, in short, had an open expression, which revealed, in great measure, the extent of the danger to be apprehended. Its comparative mildness appeared in the slighter disturbance of the vital processes, and in the absence of signs of organic injury. Nevertheless, the utmost sagacity could not from early symptoms with certainty predict, that the disease would pursue a safe and gentle course.* In fact, many examples of this species of fever, I allude to those of "Simple Typhus bordering on the Inflammatory," were restrained within the limits of the present classification, and prevented from passing into the inflammatory or congestive forms by the timely use of the lancet or leeches, in other words, *by anticipating evil.*

* "In truth, the commencement and early stages of each form of fever have so many common features of resemblance, as often to elude the discrimination of very experienced observers."—*Percival on Fever.*

(See Tables passim.) I have thus demonstrated the truth of a proposition, the exact parallel of the following one, recorded by Dr. Edward Percival, that—"The gradation or degeneracy from the mildest to the severest type was found to depend considerably, if not principally, upon the delay or neglect of remedial treatment,"—one may venture to add, of *energetic* treatment!

The description of "Simple Typhus bordering on the Inflammatory" will be couched in a few words, the substance of its history being already given in the preceding account of the simpler forms of the disease. When called to witness a case of this kind, every thing conspired to impress on the mind of the medical attendant the existence of greater danger. It was written indeed on the patient's countenance, though in less strongly marked characters than in the more exquisite forms of the disease. "The countenance," says Dr. Percival, very truly, "in acute inflammation, is expressive chiefly of pain, or of fortitude, or of impatience; but in typhus fevers it has a relaxed dejected aspect, the eye glazed, the complexion muddy,

and the features expressive of embarrassment and despondency."* Other diseases too, as well as typhus fever, have a physiognomy of their own. Who has not with sympathy contemplated the glistening and hopeful countenance of the consumptive, so much at variance with his situation; and the suspicious or vacant expression of the maniac? But other circumstances, still more strongly than the countenance, marked the degree of danger. The prostration of strength was greater; a high degree of temperature, not in every instance so regularly developed; local pain was greater, arresting the patient's attention much more, whether it existed in the head, chest, or abdomen; where pulmonic disturbance prevailed, as in case (12,) the distress was more exquisite, with panting; the bowels were more intractable; in case (58) there was long continued nausea and occasional vomiting, with diarrhœa; nervous irritation, both in corporeal sensations

* Dr. E. Percival's Practical Observations on Typhus Fever, p. 89.

and mental wanderings, was in one instance (12) extreme.

The nature of Simple Typhus will be further illustrated by a view of its duration, allowing for the influence of treatment. Premising that critical days were seldom noticeable, I find, there were three recoveries within the first week, seven in a fortnight or less, seven in three weeks or less, eleven in a month or less, four in five weeks or less, and two in about six weeks. It is observable, that the severer forms of the disease, the cases of "Simple Typhus bordering on the Inflammatory," were all protracted cases, only one of them becoming convalescent within the third week. This can excite no astonishment. It is true, several of the simpler cases were equally protracted. But this circumstance is easily accounted for, as follows:—In case (22) the patient had been much neglected; in (60) we had a broken down habit; in (10) the protracted disorder of the bowels, with other symptoms, originated a suspicion of a proneness to mesenteric disease, which it required all our efforts to avert; and

in (34) the patient had been much neglected, and when I first saw him, in a condition the most feeble and helpless, I was induced to administer bark, which only served to cherish and perpetuate the lingering low excitement. The moment I changed the plan of treatment, and gave gentle alteratives and cooling salines, his constitution rallied, and his recovery was rapid.

I seldom marked the regularly formed crisis so well described by Dr. Cheyne, as consisting of three stages, one of general disturbance, a second of rigor, and a third of perspiration, resolving the complaint. On the contrary, a gradual though increasing perspiration, or an improving and soluble state of the bowels, or long continued and refreshing sleep, with the gradual resumption of every impaired vital function, terminated the disease.

SECOND SPECIES, consisting of those examples of the Disease, in which the Nervous System is thrown into additional Disorder, from its intensely sympathizing with Inflammation or Congestion in other important Organs, to the assumption in some Cases of similar actual Disease.

Not one patient in the preceding variety had fallen a sacrifice to the disease. In the present I had the mortification to lose two, which manifestly proved the danger of the distemper. I confess indeed my conviction, that more energetic measures might possibly have saved them. I think so, (in addition to those general reasons for bleeding in typhus fever, which I shall state elsewhere,) because, when I came to employ the lancet in equally severe cases of this variety, I was enabled to avert the fatal shaft in every instance. It is not a little singular, moreover, that each of the little boys, whose deaths I am deploring, had a brother severely, though in some measure differently,

attacked by the fever; in both which cases I bled, and they recovered. Thus in each family, apparently from difference of treatment, "one was taken, and the other was left!" In circumstances almost similar, Dr. Cheyne attributes his success entirely to bleeding. "I never witnessed continued fever," says he, "with so many inflammatory symptoms; and it was probably owing to this peculiarity, that it proved so favourable; for when danger existed, it arose from a manifestly inflamed state of some of the viscera, a state which yielded to blood-letting, when seasonably employed."*

The nervous system is generally much disturbed in typhus fever in its simplest form. It is liable to be thrown into considerable disorder also in simple inflammations of the viscera, unconnected with idiopathic fever. It is reasonable to conclude therefore, that the disturbance and irritation of this system will be greater where both morbid conditions exist, than under the influence of either singly. "Experience,

* Dublin Hospital Reports, vol. i. p. 15.

however, ought to go before all reasoning," as La Mottè expresses it. And accordingly a reference to the recorded observations of others will convince us, that at least there are exceptions to the general remark before stated. Thus a careful review of the phenomena of the inflammatory variety of fever, recorded by Dr. Cheyne, as occurring in the latter end of spring, and in the summer of 1816, discovers less disorder of the nervous system, than might, *à priori*, be expected. In all the examples of this variety, however, which came under my observation, the disturbance of the nervous system was strongly marked; except, as in cases (16 and 41,) when either a vital organ was not inflamed, or the inflammation was only slight. Dr. Clutterbuck has indeed remarked, that "the combination of catarrhal or even pulmonic inflammation, if slight, with fever, has not always seemed to add to the danger of the latter; sometimes rather the contrary, the brain affection appearing to be mitigated by the combination."*

* Clutterbuck on Epidemic Fever, p. 163.

In this variety the typhoid countenance was increasedly impressive by a peculiarity of look indicating much distress, and, as in case (38,) even agony. Intellect, sensation, secretion, the development of animal heat, and the motion of the voluntary as well as involuntary organs, were all seriously affected in their operations. In three of the cases (56, 64, 66,) the mind was slightly alienated with the earliest symptoms of excitement. In case (46) the delirium set in at no late period, and though only occurring at nights, continued a long time, and was unusually severe; the same remark is applicable to case (24.) In another example (2) the delirium was not dissipated with the returning light, but continued throughout the day. In case (35) a sort of delirious restlessness and irritation utterly prevented sleep, though the patient recovered some degree of tranquillity and correctness of idea during the day. Again in case (38) a state of mind, which I cannot better describe than by denominating it a delirious anguish, made the patient constantly vociferate his sufferings in the most unintelligible

language and the most piteous tones, and this by day as well as by night.—Acute bodily pain, no less than occasional injury of the different organs of sense, indicated much interference with the function of sensation. Thus in case (35,) in addition to excruciating pain in the left half of the head, there were incessant noises in the ears, with slight deafness of the left ear, disagreeable smells and disgusting tastes. The secreting organs were as much impaired in their functions, as could well be conceived. Temperature was morbidly increased in every case, though in very different degrees; in about half the number it was certainly excessive. The pulse ranged from 100 to 130 or 140: it was in general depressed and feeble, though somewhat tense. In the two fatal instances it attained a higher range towards the conclusion, and eventually became incalculable. In almost all the cases prostration of strength was a prominent symptom.

There are two considerations, which will go far towards explaining this excessive disturbance of the nervous system. In the first place,

some part or other of the pulmonary organs suffered, in a majority of the cases, from inflammation. And if we attach credit to the following assertions of Dr. Armstrong, which seem borne out by internal evidence of their truth, we shall be disposed to believe that, in common perhaps with other signs of functional disorder of the nervous system, "delirium is a common attendant on typhus at all times, but particularly when any part of the thorax is attacked with inflammation, which, impeding the transmission of the blood through the lungs, tends to prevent its free return by the veins from the brain. This circumstance, together with the increased action of the arteries of the head, may perhaps go far to account for the frequent disturbance of the sensorium in such cases; but it is not improbable, that the delirium may also in part depend on those inexplicable sympathies, which exist in the nervous system."* Secondly, in four at least of the examples, the brain or nervous system took on

* Armstrong's Practical Illustrations of Typhus Fever, p. 40.

the same inflammatory action, with which it had previously sympathized, when existing in other organs.

In some cases there were symptoms of genuine peripneumony; in others of inflammation of the bronchial membrane; in one of a pleurisy, and in another eventually of cynanche trachealis. In one or two cases the attack on the brain and lungs seemed simultaneous; while in a third no sooner were the lungs freed from vascular disease, than inflammation attacked the brain.

The last of these cases I shall describe more particularly, as also the case of eventual cynanche trachealis. In the former, pain in the side, and dry unavailing cough, with acute pyrexia, indicated the existence of pneumonia. Vide case (35.) The patient was bled once and again largely, with relief of the pectoral symptoms; but immediately the brain took up the inflammation. Excruciating pain on one half of the head and in one ear followed, delirium and prostration; the tongue was throughout without fur, but swollen and particularly red; deafness and tennitus aurium; taste and

smell vitiated; and excessive nervous irritation. In the latter (38) the complaint arose with all the symptoms of an acute pyrexia, accompanied in a day or two with frequent delirium, extreme disquiet, restlessness, and irritation; skin excessively heated and pulse prodigiously rapid; dyspnœa daily gaining ground; moaning and writhing in every direction, the pain being referred by turns to the head, abdomen, and chest. "It is worthy of notice," says Dr. Clutterbuck, (p. 165,) "how much, on some occasions, the pain of inflammation is obscured by the presence of fever; so that the inflammation often proceeds to a fatal length before it is even suspected." Certainly in the present instance there was the greatest obscurity, as the patient could give no connected account of his sufferings. The peculiarity of his respiration soon attracted my attention, which had at first been directed to the brain, as the probable seat of his pain. The increasing dyspnœa, seconded very soon by the loud crow of genuine croup at each inspiration, left no room for doubt or even hope. The case proved fatal.

There were three cases of bronchial inflammation, in which considerable expectoration carried off the complaint; if we except case (46.) To this case I was called in on the fourteenth day of the disease; there was much debility; and notwithstanding the pulmonic distress was excessive, I had not courage to deplete with the lancet more than once. I took nine ounces of blood, and he fainted. He afterwards lapsed into a state, which has been denominated pseudo-pthisis, and which has the closest resemblance to genuine consumption. He had the good fortune however to struggle through a combination of ills, formidable in the extreme.

Finally, there was a case of cynanche tonsillaris; and another of gastric inflammation, accompanied with exquisite tenderness on pressure below the ensiform cartilage, and constant vomiting and purging. The alvine evacuations in the latter resembled muddy ditch water.

As to the duration of the complaint, this was found to vary exceedingly; as the patients recovered on the 5th, 7th, 12th, 14th, 17th, 25th,

26th, 36th, and 43d days. The occurrence of critical days was noticeable in two instances, (cases 2 and 68;) the fever evidently resolving itself in the latter on the 14th and in the former on the 21st day. Of the two fatal cases, one died on the 17th and the other on the 18th. In case (45) typhoid fever disappeared on the 31st day; but it was succeeded by one resembling hectic, which protracted the disease to the 66th.

THIRD SPECIES, which embraces those examples of the Disease, in which the Nervous System appears to be essentially implicated in an idiopathic and primary Inflammation or Congestion, with occasional subsequent disturbances elsewhere.

The severity of the Bridlington Epidemic is proved by the fact, that twenty cases belong, in classification, to this formidable variety. We have only to subjoin the numbers of the second Species (viz. 12,) and of the more aggravated examples of the first Species (11,) to place this re-

mark in the most convincing light. For it then appears, that out of the seventy cases of the disease, forty-three were very severe, and of these the majority assumed its most aggravated forms. That four deaths should have occurred in this variety, considering the ordinary mortality in private practice, may possibly excite no surprise. And yet I candidly acknowledge, the chances of their recovery would have been greatly multiplied, had I at first had an adequate conception of the virtues of blood-letting. But I will explain hereafter.

That I may draw aside the curtain, as it were, and shew the true source of danger, and demonstrate, at the same time, that the disorders observable in the nervous system have their origin in vascular derangement, I shall open my description of the symptoms of this species with an account of the dissection of one of the fatal cases (15.) There was doubtless a peculiarity in the symptoms of the case referred to, a peculiarity, which indicated congestion to prevail over inflammation. The post-obituary examination of this case, in conjunc-

tion with preceding symptoms, shall be presented to the reader, as illustrative, as far as accordancy of symptoms is traceable between it and the other cases, of the class of fever affections of the nervous system.

The symptoms very nearly corresponded with the account given by Dr. Armstrong of the less severe forms of congestive typhus. The fever lasted three weeks, ending fatally on the twenty-first day. I only witnessed its course during the last eleven days; in the first five of which there was generally slight yet distinct mental aberration, with occasional maniacal extravagancies; and in the last six almost constant delirium, with great reduction of the bodily strength. Every symptom pointed to the centre of the nervous system, as the vitiated source of the febrile phenomena. The duration of the disease, and the peculiarities of the patient, withheld my hand from unsheathing the lancet. She was a delicate female, had borne many children, and gave suck at the time; she was moreover the subject of domestic affliction, and from extreme poverty was ill-nourished. The

appearances of debility, though more seeming than real, served still further to intimidate me. On these accounts, leeches, purgatives, alteratives, and blisters, with a seton in the neck, were relied on only to prove their futility. The case occurred in September, 1818; the patient's age about forty; the weather cold and moist. In an adjoining street another fever patient died, I believe, with most of the symptoms described in this case. In that case too no blood had been abstracted. My patient had long been the subject of occasional paroxysms of low melancholy derangement.

It is observed by Dr. Armstrong in his work on Typhus, "Opportunities of inquiring into the morbid derangement after death, in the less violent forms of congestive typhus, have not occurred to me so frequently as I could have wished." This remark may give additional value to the following account of the morbid appearances after death.

Appearances on Dissection.

1. *Head.*—Dura mater strongly adherent to the cranium. Pia mater morbidly attached to the dura mater in one circumscribed district near the longitudinal sinus, opposite to the vertex. The membrane in this part rendered opaque, looking like the vestige of former disease. Great effusion of a semi-transparent fluid under the pia mater. Effusion into the lateral and third ventricles less excessive than is seen in some cases. Great effusion into the fourth ventricle, and also down the spinal canal as far as the eye could reach. The pia mater blood-shot in the extreme between the convolutions of the brain. Wherever the medullary part both of the cerebrum and cerebellum was sliced, points of blood, soon accumulating into distinct drops, were abundantly evident.

2. *Chest.*—The pleura pulmonalis of the left side strongly and uniformly adherent both to the pleura costalis and pericardium, looking like a specimen of old disease. The viscera themselves free from disorganization.

3. *Abdomen.*—The membrane covering the convex surface of both lobes of the liver, adherent to the opposite peritoneum of the parietes of the abdomen, looking like a relic of former disease. Three large gall stones in the gall bladder. A short track of the ileum was very turgid, from recent determination of blood.

I regret much that this is the only dissection I have to offer; and that the prejudices so inveterate in the country to post-obituary researches, should deprive us of the advantages enjoyed in populous towns and in hospital practice.

Dr. Clutterbuck has proposed to divide fever affections of the *nervous system* into four varieties. (The term *brain* is employed by him, which I do not consider sufficiently comprehensive.) His classification accords with the results of my experience. I shall therefore adopt it, employing his very excellent definitions.

1. " Sometimes the febrile symptoms, as indicated by the pulse and heat of skin chiefly,

are mild, yet the functions of the brain are greatly disordered, as seen in the early delirium, the disorder of the senses, and of the muscular power. This is a dangerous state of fever, in which the tongue commonly assumes a brownish hue in different degrees, with more or less thickness and dryness of the crust that covers it, according to the greater or less severity of the disease."*

I saw four cases of this variety, which I shall succinctly describe. One of these patients, case (3,) was seized while at work with rending head-ache, alternate chills and flushings, and a slight alienation of mind, manifested by the incoherence of her answers. The tongue was dry, and brown in the centre. Though full of youth and vigour, her strength at once forsook her. The disease however was arrested in its career by a free bleeding, and she was convalescent on the fifth day. Another, case (67,) fell ill on ship-board with slight febrile symptoms, but an uncommon affection of the senso-

* Clutterbuck on Epidemic Fever, p. 21.

rium. His irregular movements were the diversion of his unthinking companions. I saw him on the sixth day with an arid skin, brownish tongue, pulse somewhat accelerated, and urgent thirst. His answers were tardily conceived, and impatiently articulated; on attempting to walk, he staggered like a drunken man, complaining of great exhaustion on quitting the horizontal posture. I bled him once from the arm, and once from the neck and leeched him very abundantly. These measures kept the inflammation in check. Paroxysms of delirious irritation, with intervening stupor, characterized the latter stages of the disorder, which declined on the nineteenth and ended on the thirtieth day. A third case has been already described (15,) together with an account of appearances on dissection; for it terminated fatally on the twenty-first day. It may be added, that in that case nothing could be more irregular than the development of febrile heat, which was in general chiefly concentrated in the vital organs. In the last case (55) the patient, after the slightest warning,

was overtaken with pain so intense in the occiput, that half insensible he staggered and fell. "Only I do'nt lose my senses," was his constant cry. Pulse feeble and slow. Tongue white, but moist. After the lapse of six or eight hours, notwithstanding I employed free general and local bleeding, the pain again became acute and insupportable, accompanied with delirium. The pain now extended the whole length of the spinal marrow. It afterwards became fugitive, attacking the head and chest by turns. Temperature was never much augmented. His senses gradually returned, and he was well in a fortnight. For the particulars of his treatment, vide Table.

The two former of these cases exactly correspond with Dr. Clutterbuck's description; the two latter differ considerably, answering in their leading features to Dr. Armstrong's delineation of Congestive Typhus. The variation may be explained by the supposition, that an inflammatory condition of the nervous system prevailed in one case, and congestion in the other.

2. "Sometimes the reverse of this occurs.

The pyrexia or general febrile symptoms are violent; the pulse being strong and full, and the heat of skin excessive. The tongue is covered with a white fur. The face is flushed. Severe throbbing pain is complained of, both in the head and over the whole body. Yet the functions of the brain are but little disordered. If the early stage of this variety of fever be neglected, and active evacuations abstained from, under an apprehension of a typhoid state succeeding, it sometimes happens, that the general vascular action of the system subsides, while the affection of the brain increases." (p. 22.)

I could enumerate at least half a dozen examples of this variety, as cases (1, 23, 26, 33, 42, 51;) but I shall content myself with describing two of its most exquisite forms, cases (1 and 42.) I must premise however, that when the early stage has been neglected, and active evacuations abstained from, it does not invariably happen, that, with the increasing affection of the brain, the general vascular action of the system subsides. On the con-

trary, the two cases I am about to describe, exhibit the direful effects of a maddened and unrestrained career of the circulation on the functions of the nervous system, which did not subside in one instance till forcibly arrested by venesection, and in the other till it had spoiled in all probability the texture of several vital organs. The first of these cases is that of my late lamented friend and colleague, Mr. Kingston, who died subsequently of pulmonary consumption. It was the most painfully interesting case of disease I ever witnessed, and cost me much anxiety, reflection, and bodily as well as mental fatigue.

The case commenced with alternate rigors and flushings, and ended in very ardent fever. During the first four days there was severe pain in the head, which was relieved by the application of sixteen leeches. Heat 102°, pulse 120, P. M.; 92°, 112, A. M. On the evening of the sixth day of illness, the patient was seized with a sort of febrile syncope, which followed an interview calculated to affect his feelings and excite his mind. Shortly after he had retired

to bed, the cheeks purpled, and the temperature of the skin began to be augmented. I measured it at nine o'clock, and found it 93°, pulse 116. I was sponging his hands and face with tepid water, when he became exceedingly low spirited, and said, " Sandwith, I feel as if I was going to die!" This he repeated many times, accompanied with an air of great anxiety, and deeply and repeatedly sighing. I strove to cheer him, but in vain. At ten o'clock the temperature had sunk so much, that on measuring it I found it only 83°, and the pulse fluttered and counted 128 in the minute. No time was to be lost. I gave first a tea-spoonful of volatile alkali; then a glass of wine; and then brandy in quickly repeated doses. In despite of these measures he appeared sinking, and lay about half an hour almost entirely pulseless, and utterly unconscious of surrounding objects. A sort of spasmodic action seized the œsophagus and larynx; he made a crowing noise, and foamed at the mouth. I dashed cold water on the face, which made him gasp, and then applied a bladder, filled with hot water, to the region of

the heart. At length the pulse resisted the finger, and he awoke as from a dream. The temporary excitement occasioned by the cordials, while it relieved us from our present difficulties, did not subside, but by materially aggravating the fever, magnified those which had to follow. Nightly delirium, of a mild form, set in immediately afterwards. The tongue, hitherto white, assumed a parched yellowish appearance. Inflammatory in its commencement, it now appeared to be assuming a typhoid character. The sensorial functions became increasingly disordered, and an irritating cough supervened, which came on in convulsive fits. Symptoms denoting the existence of sub-acute inflammation of the brain, as described by Dr. Armstrong, now exhibited themselves:—"the heat of the surface more elevated;" "the face permanently flushed;" "the tongue drier and stiffer;" and "the patient now lies at nights with his eye-lids half closed,* in light indistinct dosings, associated

* "In general it may be remarked, that delirium with the

with moaning, frightful dreams, and startings." On the morning of the ninth day of illness, after a delirious night, the cheeks being deeply flushed, and the vessels of the conjunctiva turgid with blood, Mr. K. fell into the same mental anxiety and depression, which was the prelude on a former occasion to that tremendous syncope which had nearly extinguished life. He sighed deeply and repeatedly, but spoke not a word, even when most anxiously interrogated. Dr. Simpson of New Malton witnessed the painfully interesting scene. When, instead of a morning remission, these symptoms presented themselves, the flushed cheek, the turgid eye, and this oppression of the nervous system, the true nature of the case flashed across the Doctor's mind. The melancholia he considered to be entirely dependant on cerebral inflammation. The peculiar phenomenon described before was intelligible on the same

eyes open is materially worse, than with those organs closed; and that errors of vision, and especially blindness, are amongst the worst symptoms of fever."—*Percival on Fever*, p. 76.

principles, the depressing passions, which had in part occasioned the paroxysm, being far from sedative on the vascular organization of the brain. The excitable state of the patient's system was another proof to Dr. Simpson's mind of the correctness of his views. I had fomented the feet by his direction; and the speedy consequence was a most intense degree of flushing and heat over the whole body, which brought on a profuse perspiration, that did not at all diminish the fever. A profusion of leeches to the temples, no fewer than thirty, did not arrest the progress of the inflammation. The patient frequently wandered during the day, and was never wholly rational. The nightly exacerbation, accompanied with a maniacal delirium, the delirium ferox, came on at bed-time. Leeches were applied again. After the bleeding had ceased, I went to bed, leaving the patient with a fierce expression of countenance, an uncommonly glistening eye, a suspicious look, and talking very wildly. I was called up in the morning at an early hour, and to my grief and astonishment found the patient out of

bed and very unmanageable. Dr. Simpson visited him at nine o'clock, and affected with the increasing violence of the symptoms, in defiance of the preceding and other measures, was still more and more confirmed in his opinion of there being phrenetic inflammation, and to a most alarming extent. He actually dreaded a speedy effusion, or, if active depletion could ward off that danger, it was impossible to say whether or not the intellectual functions would be permanently injured; such unhappy consequences being by no means uncommon in fever. He got me instantly to open the jugular vein, and abstract twelve ounces of blood; which being done, a cold perspiration and the paleness of syncope supervened. He requested me moreover to repeat that measure the same evening, should a violent return of fever indicate its propriety. Mr. K. continued more passive, and with a cooler skin all the day. There were cheering manifestations also of gradually returning mind. Perception and memory yielded decided evidence of melioration, as might be inferred from a progressively increasing know-

ledge of those around him, and inquiries after his children and other relatives. When evening approached, however, the cheeks flushed, and the skin glowed with a morbidly excited temperature; and soon more marked aberration was discoverable. At nine o'clock therefore I re-opened the jugular vein, and took away about ten ounces of blood in a bold unimpeded stream. This measure had the desired effect only for a season; checking but not preventing a return of fever and delirium. More violent maniacal symptoms than ever recurred at one o'clock in the morning. In fact I could myself scarcely restrain the patient in bed. Towards morning he became calm, and fell into a profound sleep, which lasted about forty-eight hours; after which he kept himself awake during longer intervals. It is worthy of remark, that, before he fell asleep, he had been awake sixty-two hours and delirious, and in a state of the utmost excitement for the greater part of that period. "Whenever patients fall into a tranquil slumber," says Dr. Armstrong, "they should hardly ever be disturbed to give them food, until six or seven

hours have elapsed: such a repose is most desirable, and will sometimes renovate nature, when her faculties seemed prostrate beyond the power of the medical art." In the present instance the strong lethargic tendency was rather a suspicious circumstance; since it was impossible to say, whether it was the mere consequence of a highly excited state of the brain, and an effort of nature to restore her exhausted faculties; or whether it manifested a gradual effusion into the ventricles. The latter supposition was countenanced by an occurrence of great alarm,—an involuntary discharge of urine;* which pointed out a want of the usual transmission of sensorial power from the brain to the remote parts of the system. But what that state of brain was, which interrupted the communication, whether one of exhaustion merely, or of disorganization, was extremely problematical. At first I confess I felt apprehensive lest this symptom was the herald of approaching

* "On inspecting the tables, I find that of forty-two, in whom this symptom occurred, eighteen terminated in death." —*Welsh on Blood-letting in Fever*, p. 23.

coma and insensibility. My fears however subsided, when I found that our patient could be roused without much difficulty, and, when roused, could sustain his attention for a few moments without evincing any aberration whatever; in short, that both his mental and bodily powers seemed refreshed by it. I felt disposed also to hail another symptom as an indication of approaching convalescence; I mean a profuse perspiration, which very soon followed the disposition to sleep. The tongue too became moister and cleaner; and the gradual decline of the cough by a free expectoration pointed towards a solution of the disease. Increasing energy of mind; a return of power in the sphincter vesicæ; a gradual subsidence of the pulse to the natural standard; returning appetite, and gentle diaphoresis taking the place of profuse perspiration, all announced a speedy recovery. This was somewhat retarded by a torpid state of the bowels dependant on slight remaining congestion in the hepatic system. Nevertheless he was convalescent on the twenty-third day.

The other, case (42,) set in with all the symptoms of an acute pyrexia, accompanied with an intense head-ache. The abstraction of eight ounces of blood from the jugular vein on the second day afforded complete relief from pain, masking the latent sources of danger under an imposing appearance of amendment. The fever in the mean time, " steady to its purpose," went on with severity, undermining the structure of the vital organs. The attempt to obviate by leeches, even " in relays of dozens," the organic changes, too often induced by long-continued excesses of the circulation and consequent local determinations of blood, proved in this instance wholly abortive. On the seventh day the most dreadful bilious vomitings, symptomatic in all probability of cerebral irritation, portended a calamitous issue. Signs of enteritic inflammation quickly succeeded. The patient after this fell into a state of prostration and insensibility, highly indicative of congestion in the whole nervous system. Dr. Bateman has accurately described this state of congestion in fever, when preceded by the usual series of febrile actions,

to be accompanied with "great languor, loud moaning, and frequent cries of distress; the skin rather cold; the pulse extremely languid; the tongue covered with a clammy mucus; the patients lying supine, in a state of torpor and stupor, appearing like obstinacy, as they would answer questions when shaken, and grumbled on being so roused to reply; their limbs lay chill and helpless, in a state very opposite to the starting and picking condition symptomatic of acute cerebral irritation and inflammation." This state did not last long. The patient soon lapsed into a still more helpless condition: the extremities became cold; the pulse too rapid to be counted; the supine position was never abandoned; the features grew sharp; respiration was accomplished with difficulty; and death closed the scene. This event took place on the eleventh day.

The same tragic scenes were not witnessed in the remaining examples of this variety; precisely because I anticipated evils so intractable, when once they appeared, by a timely and more vigorous employment of the lancet. (Vide Ta-

ble, cases 23, 26, 33, 51.) In one patient, the fever was thus arrested at once; in another materially abridged; while in a third it was protracted to the seventy-seventh day by repeated relapses.

3. "Now and then the febrile symptoms run high, and at the same time the sensorial functions are greatly disordered. This form of fever is never of very long duration. After eight or ten days or less, the general vascular action declines, while the disorder of the sensorium continues or increases. Symptoms of putrescency now make their appearance, as blackness of tongue, teeth, and lips; fætor of the breath, and of the various excretions; petechiæ or livid spots appear upon the skin, and often dark-coloured hæmorrhages take place from different parts." (p. 23.)

Dr. Clutterbuck very properly considers this form of the disease, taking every part of his definition into the account, to be "often the creature of neglect or of art." Fortunately by taking the business out of nature's hands, and depleting freely, the symptoms of putrescency,

(the mere consequences of leaving the disease to its own destructive course, adopting inadequate antiphlogistic measures, or employing stimulants instead of evacuants,) did not manifest themselves, in my practice, in any instance of this variety. That this would have been the case, however, had I neglected early venesection, a survey of the incipient symptoms of the disease will render sufficiently probable. Thus, in case (17,) the attack was ushered in with a shivering fit, followed by fervent heat, excessive thirst, syncope two or three times, vomiting, restlessness, loquacity and delirium, and severe head-ache. On the third day the lungs participated in the inflammatory condition of the brain; as appeared from their oppression, a stitch in the side, cough, and expectoration tinged with blood. The blood taken in this case proved very sizy. A reference to the Table of Cases will shew, amongst other particulars, that the patient was convalescent on the fourteenth day. Again, in case (49) there was severe head-ache from the first moment, quickly followed by acute fever and delirium. When I

saw this patient on the third day, I found him in a sitting posture in bed, unconscious of his situation, fretting and tearing his hair. His pulse was from 120 to 130, tense and wiry; skin excessively hot; cheeks flushed, and eyes red. There appeared indeed an extraordinary susceptibility to high febrile action in this individual, as there was in his brother, who died with all the symptoms of cynanche trachealis (38.) Their mother assured me, that both of them suffered in like manner from measles more acutely than any of their brothers. Dr. Clutterbuck makes a similar observation on this variety of the disease. " It appears to be owing to an unusual degree of susceptibility to fever in certain individuals, just as it is observed with respect to small-pox." (p. 24.) In case (49) convalescence took place on the twenty-first day; in (48) on the twenty-eighth; and in (61) on the twenty-first. The last case was that of an infant, aged two years and a quarter, and in her the symptoms closely resembled those of hydrocephalus.

4. " A fourth variety of the disease may be

marked, namely, where both the disturbance in the sensorial functions, and also the pyrexia or general disordered vascular action, are at first very slight, and continue so for a week or more, before any alarm for the safety of the patient is entertained. Then the disorder of the sensorium increases from day to day, till it arises at the highest pitch." (Clutterbuck, p. 24.)

Some of my worst cases were of this variety. One of them, case (36,) proved fatal. So mild were the early symptoms in this unfortunate case, that neither foreseeing nor anticipating evil, I employed no active precautionary measures. About the tenth day, delirium, extreme prostration, and other alarming symptoms, suddenly arose. The difficulties were not to be encountered by weak measures. Accordingly leeches, blisters, and other subordinate evacuants, proved wholly unavailing. "The delirious rambling became more and more violent, the patient incessantly talking loudly, singing, roaring, and making various noises, night and day, but more especially during the night. This more noisy delirium was attended with

watchfulness. In this case also there was great restlessness, and disposition to pick or pull about the bed-clothes, and, had the strength permitted, to get out of bed. There was also subsultus of the muscles; and the tongue, which was coated with a thick, hard, brown fur, when protruded, trembled." (Bateman, p. 55.) The patient died on the seventeenth day. Another fatal case (9) of this variety occurred under circumstances very different. I had in this instance anticipated evil by too indecisive a bleeding. Afterwards misled by apparent debility, the mere result of an oppressing cause, I commenced with the use of cordials far too early; for it was not easy to determine whether the disease was of the simple or inflammatory species. Acting upon the former supposition, I imagined the debility was allied to collapse. "After six or seven days," says Dr. Armstrong, "sooner or later, according to its mildness or severity, the stage of excitement gradually gives place to that of collapse." The recommendation of wine for a debility so hypothetical must be injudicious under any circumstances. When

inflammation lurks under the concealment of a simple exterior, the rule, if applied, must prove fatal. Its application, or let it even be said its misapplication, on this occasion, aggravated the fever and sensorial disturbance. When the case became desperate, I had then recourse to the desperate measure of bleeding at too late a period of the disease to do good. Death occurred on the thirteenth day.

The two following cases, though equally severe with the preceding, form a pleasing contrast in being crowned with success. In the first of these, case (18,) Dr. Simpson was in attendance, when the danger became extreme. The energy of his measures will appear in the sequel. The subject of this attack had for three years been the victim of melancholia, accompanied with low excitement of the sensorium. Finding himself worse than usual, he sent for me on the third day. Head-ache, disturbed nights, fits of nervous irritation, profuse perspirations, with slight catarrhal symptoms, indicated an increase of his disorder, which seemed to have arisen from cold. The tongue

also was unusually furred, and the bowels more irregular. Purgatives gave no relief to the head-ache; and therefore on the fifth day ten leeches were applied to the temples, which yielded immediate relief. On the eighth head-ache returned with greater severity. The complaint was not traceable to contagion, and the supposition of typhus was not admitted. On the ninth he was evidently worse: he had sweated immoderately the preceding night; the head ached heavily; the eyes were suffused; and he had a hurried and fluttered manner, with catchings of the muscles of the face. The temporal arteries were distended, and pulsated strongly. Leeches were applied, succeeded by purgatives, and cooling applications to the head. At half-past ten o'clock that evening I was sent for, with the intelligence that he was dying. This was his own conviction, and his spirits were depressed in the extreme. The skin was hot and perspiring, and there was the utmost prostration of strength. Very weak cordials were given during this semblance of debility. On the following morning the tongue was furred to

the very tip; acute pain complained of in the epigastrium; pulse 100, with frequent irregularity; perspiration had been profuse, but without advantage; the mind still clung to the idea of approaching death; occasional startings; and now and then the patient was irrational. The true nature of the disease was by this time obvious; and the event of its communicating infection to three others at length justified the supposition of typhus. Palliative measures, such as leeches, purgatives, and salines, were alone employed, as Dr. Simpson was sent for. The symptoms were less urgent that night, though he was delirious. On the morning of the eleventh he seemed more collected. A tendency to aberration was discoverable, however, and there was a look of fatuity. Pulse below 100. Dr. Simpson arrived in the evening, and found our patient in all respects the same, except in the preternatural excitement of mind, which he shewed during the interview.

Dr. Simpson considered the melancholia, together with the apparent debility, to be connected with and dependant on an excited state

of the cerebral vessels. The sudden fit of despondency and prostration which had occurred on the evening of the ninth, so much resembling that experienced by Mr. Kingston,—the white tongue at first, the loaded appearance of the vessels of the conjunctiva, the heat of the scalp, the aberration of mind,—all convinced him of the existence of phrenetic inflammation. The pain in the epigastrium he considered a symptomatic affection, as also the cough. Much stress was to be laid also on the heated state of the whole surface, and the general and continued perspirations, which were productive of no benefit. These sweats had a peculiar unctuous appearance, and, as originating in an increased activity of the sebaceous glands, were indicative of a highly feverish state. The temporal artery pulsated more strongly than the radial. The pulse indeed did not exceed 100; but in affections of the brain, as in enteritis, he considered that symptom as deserving of very little attention. Without active bleeding he entertained no hope. Twelve ounces of blood were therefore immediately taken from the arm,

which shewed the thin blue semi-transparent lymph, almost peculiar to phrenetic inflammation. And here it might be observed, that in pleuritic inflammation the size is much more abundant and whiter, and still more so in rheumatism. This appearance of the blood drawn confirmed us in our conjectures; and accordingly twelve ounces more were taken from the recent orifice, which produced an incipient deliquium. The following night was rather more tranquil, and the pulse rose to 112. In the morning, the symptoms continuing, twenty ounces more of blood were abstracted. This bleeding was sustained better than on the preceding evening; nor did so complete a prostration of the system follow, though the face became very pale and the pulse soft. Cooling saline purgatives were administered; and on the following day the temples bled with leeches; afterwards blisters to the nucha and behind the ears. Mental aberration still continuing, with marked irregularity in the pulse, leeches were repeated on the following day, to the number of twenty. A few days afterwards, leeches in half

that number were repeated a third time. Occasional purgatives, salines, digitalis, and the blue pill as an alterative, given till slightly affecting the gums, restored the patient to convalescence on the thirty-fifth day.

In the next patient, a little delicate boy, six years old, case (65,) the symptoms of fever came on with the utmost mildness. Contagion was not traceable; and I attributed his indisposition to disordered bowels, contenting myself with the employment of purgatives. I did not see the patient on the sixth day of illness, being from home. On my return on the seventh, however, I learnt that severe delirium had set in on the preceding evening, and that the child was with difficulty kept in bed. The same maniacal delirium still existed. Without hesitation I took from his arm a tea-cup-full of blood (four ounces.) On the eighth I learnt the same maniacal symptoms continued; pulse 108. I took another tea-cup-full of blood from the jugular vein. The delirium continued three days longer, with considerable stupor, during which period the temples were leeched twice:

pulse 120; frequent moaning and complaining, and, when dosing, the whites of the eyes uplifted, were characteristic marks of the extreme cerebral irritation under which he laboured. After this time he slept considerably for some days; his skin became cool, and the pulse subsided to 100. For several days subsequently a new symptom annoyed us,—constant distressing pain referred to the abdomen. No sooner had we surmounted this difficulty, than a still more formidable one awaited us. A harassing cough, with other signs of pulmonic distress, supervened.* In less than a month from the first attack of fever, the patient had hectic fever, the most excessive perspirations, and all the signs of genuine consumption. To this indeed, from his great delicacy, there seemed a constitutional predisposition; from infancy too he had been subject to cough and palpitation. "In several instances," says Dr. Clutterbuck, "towards the close of the fever, and when it

* The sacrum and shoulder were slightly sphacelated from pressure, prior to the pulmonic attack.

has begun to decline, signs of inflammation have appeared in the chest, as cough, with slight pain, and difficulty of breathing. The pyrexia or febrile symptoms are thus excited afresh; but in consequence of the cessation of the affection of the brain, they undergo a change in their character. The tongue is no longer brown, but becomes covered with a white fur. The black sordes disappear from between the teeth and corners of the mouth; the lips assume a florid hue; the sallowness of the cheeks is succeeded by a bright red; the head-ache ceases and also the delirium; appetite and sleep return in some degree. The pulse is entirely changed; from being soft and undulating, it becomes hard and contracted: and hectic symptoms altogether make their appearance." (Clutterbuck on Epid. Fever, p. 165.) Through all these difficulties our little patient emerged at last, and was convalescent on the forty-second day.

III.

TREATMENT.

In tracing the effects of the treatment which I adopted in this Epidemic, with a view to the illustration of its nature, it is impossible to avoid taking a more extensive survey of the subject, and discussing, to a certain extent, the merits of the different therapeutics in Typhus Fever. Of these the most prominent is blood-letting.

The practice of bleeding in fever is now established on the basis of the most extended experience. The accumulated evidence, deducible from the recorded observations of the most distinguished physicians, and (as we shall hereafter shew in a brief sketch of the history of blood-letting in this disease) the experience of nearly two centuries, corroborated as it is by taking into the account variety of situation, (for England, Ireland, and Scotland have yielded their attestations in favour of the practice,) may

fairly be considered irresistible. Suspicion indeed may justly attach itself to the results of individual experience, the field of such observation being far too narrow, and the facts too few, for the deduction of safe conclusions. This remark may be justified by an appeal to Dr. Currie's experiments on cold affusion, and Mr. Abernethy's suggestions on the cure of lumbar abscess; for the expectations excited by the success of the practice of these distinguished individuals in their own peculiar provinces, have not received their completion in the results of a more extended experience. For a similar reason, the recent suggestions of Dr. Balfour on the use of emetic tartar, as a substitute for bleeding, ought not to be implicitly received. Caution in this instance seems peculiarly necessary, as other suggestions from the same quarter have awakened jealousy by causing disappointment. I allude to his proposal to employ bandages in the cure of rheumatism. Strongly however as the doctrine of the expediency of bleeding in typhus fever is corroborated by auxiliary evidence, and firmly

as it is established on the broad basis of universal experience, still additional confirmation can never be superfluous, while a single mind is to be found unconvinced of its truth; nor additional observations impertinent, so long as the wide field of the application of blood-letting to particular cases, stages, and circumstances of the disease, needs further cultivation.

They who can view without concern the progress of the vascular derangements which are apt to occur in fever, as chiefly indicated by the most obvious deviations in the economy of the nervous system, and see this system itself exposed to the risk of irreparable organic lesion with the same indifference, cannot habitually connect symptomatology with morbid anatomy; neither can they reflect on the strength of those sympathies, and the force of those mutual relations, whose unimpeded harmonious play is essential to life in man and the higher order of animals. Their reliance on the powers of nature unaided, or assisted only by the most contemptible auxiliaries, to defy a coalition of hostile influences against existence itself, makes

not only the depth of their pathological researches questionable, but their acquaintance with physiology itself liable to suspicion. Nor can they with Mr. Lawrence, have reflected, " What a contrast there is between the precarious tenure of life in man and the higher orders of animals, where the various organs are connected by numerous sympathies, and where the whole system is influenced by the affections of each part, so that disorders and destruction are constantly impending, and the simple but powerful vitality of" reptiles and other creatures; the tortoise for example, may be deprived of its brain with comparative impunity; at least life may be preserved six months afterwards. Is it conceivable, that they can suppose the nervous system of a man to be no more sensitive than that of a salamander; or view as lightly the changes induced by inflammation, congestion, and gangrene in the brain of the former, as it is allowable to do in that of the latter; one of which, in Dr. Edward's experiments on Asphyxia, was quite lively at the end of eleven days, though the head of the stran-

gled little reptile was then in a state of gangrene?

This was an Epidemic not to be trifled with. Of this, both those who had recourse to bloodletting, and the opponents of that practice, had ample experience: the former, if they waited for, rather than anticipated, danger, or if their early depletions were feeble and indecisive; and the latter, in the general inefficacy of leeches and blisters, to avert serious impending organic lesion. Thus, under certain circumstances, the want of success in the practice both of the advocate and enemy of the lancet in fever, proves the propriety of its employment. The reader will have observed, that my own failures occurred exclusively among those cases, in which the lancet had either not been used, or was not used freely and fairly. He will have observed too the success which crowned my efforts in those cases in which I anticipated danger, by bleeding before symptoms indicative of local determinations of blood unequivocally declared themselves; as well as in those cases in which, after such congestions had established

themselves, energetic blood-letting obviated the fatal consequences. He must remember also, that where, in such desperate circumstances, I substituted leeches for the lancet, as in case (36,) disappointment and vexation awaited me. He will consider, moreover, that, strong as may be the impression on his mind of the severity of the Bridlington Epidemic, perhaps an equal degree of danger impended in the Epidemics of some other places, with which I have contrasted it, but in which, from the unbiassed employment of the lancet, the mortality appears to have been less. Thus a new species of proof arises of the decided utility of blood-letting in the disease under consideration. My object is "truth, the whole truth, and nothing but the truth." Why therefore should I hesitate to make those errors, which are indeed chargeable in some degree on the early prejudices of my medical education, open arguments in defence of a truth forced upon me by the conviction of my senses, and rivetted on my understanding by an appeal to the soundest principles of pathology, no less than by an extensive perusal

of the recorded experience of the best medical observers?

In some concluding observations on the nature of Fever, we shall endeavour to shew the admirable provision which the Almighty Maker of our frame has made for the continuance of life in fever, by implanting an inherent independence of action in the circulating organs; which are thus competent to carry on the business of existence under a partial eclipse of sensorial and nervous energy. Thus far we may go in our concessions respecting the extent of the resources of nature in continued fever. Few propositions however are more questionable to my mind than the following one of Sir Gilbert Blane. "The powers of restoration essentially inherent in the animal economy are perceivable in most diseases, and in none more than in fever."* He admits, at the same time, the frequent inadequacy of the efforts of nature. He admits too that the following singular and valuable fact, handed down to us in the records

* Med. Ch. Trans. Vol. IV. p. 127.

of remote antiquity, "furnishes us certainly with a powerful argument in favour of artificial means of relief." It appears, from the experience, not to say experiments, of Hippocrates, the father of physic, (related in the first and third sections of his works,) on the powers of nature to struggle with continued fever alone and unaided, if we except a few suppositories, as if with a design to ascertain her adequacy to maintain and survive the contest, *that out of thirty-one cases of continued fever without local affection fifteen died*, i. e. *nearly one half*. If it be inquired, what are those artificial means of relief on which the physician ought to depend for safety in the management of fever? the answer, if correct, will not exclude blood-letting from the list of our remedies. On the contrary, we are prepared to prove that it is by far the most efficacious agent ever wielded in the contest with fever; and further, that, as a measure of precautionary safety, it is indispensable in the majority of cases.

The salutary practice of bleeding in fever is no innovation, but only a revival of the method

in use ages ago among the Greek, Latin, and Arabian physicians. In England also, at a less remote æra, it received the sanction of that great observer Sydenham. The fluctuations of medical opinion on this point, from the seventeenth to the present century, are admirably and succinctly depicted by Dr. Cheyne in the following quotation:—

"The physicians of the early part of the last century followed the practice of Sydenham. The practice of the middle of the century may be learned from the writings of Sir John Pringle and Grant. Pringle ordered blood-letting in all fevers; even in the jail or hospital fever he generally took away some blood. Grant was well aware of the virtues of the lancet in fevers, as may be learned from his cases. 'Even in the putrid diathesis,' says Grant, 'when much evacuation is required, more or less blood ought to be taken, according to the strength of the patient, before proceeding to other evacuations.'

"Some of my contemporaries at Edinburgh, about three years ago, may recollect the opinion of Dr. Francis Home, who, as a regimental sur-

geon, served in the Low Countries, while Sir John Pringle was physician to the army. Dr. Home sometimes had patients in fever let blood, to the scandal of his clinical pupils, who were convinced that fever was sustained by a spasm of the minute vessels, or that all its symptoms were symptoms of mere debility. Hence they thought the learned professor a homicide, whose hands ought to have been tied up by the managers of the Royal Infirmary; and they admired the skill of those physicians, who, while they gave their patients in fever three or four pints of wine a day, forced them to swallow a reasonable quantity of the shop cordials in addition.

" But before Dr. Home's death it again became customary to abstract blood in certain modes of fever. In fever, attended with flushing and severe head-ache, or with cough and oppression of the breathing, leeches and venesection were again prescribed. The revival of Sydenham's practice arose from a concurrence of circumstances; but it is probable that the salutary change was chiefly produced by the

writings of Dr. Jackson, and the acknowledged utility of blood-letting in the endemic fevers of warm climates. We must not forget however our obligation to Dr. Clutterbuck, nor the effect produced by the work of Beddoes, the chief object of whose 'researches' was to shew, that dissections after fever always bring to light marks of inflammation. Then came Dr. Sutton, who used the lancet with great boldness and success in a fever which occurred among the troops at Deal.

"In this country (Ireland) we are under considerable obligations to Dr. Mills, who first stepped forward to disabuse us of our prejudices against blood-letting in fever; and I gladly offer my acknowledgments to him for permitting me to attend the Cork-street Fever Hospital, while he was making his clinical experiments." (Dublin Hosp. Reports, Vol. I. p. 58.)

Truth eclipsed, after it has emerged from a temporary overshadowing gloom, shines brighter from the darkness which quenched its radiance. We have seen the doctrine in question, in the seventeenth century, maintained by the illus-

trious Sydenham. It still continued to rank the highest medical authorities in its favour during the beginning and middle of the last century. Towards its close, however, a revolution in opinion was effected to its disparagement, and "the truth, as it is in nature," suffered a total eclipse. This was only temporary, though most disastrous in its consequences; and physicians, emancipating themselves from the disgraceful fetters of spasm on the one hand, and debility on the other, have latterly been gradually reverting to the ancient modes of thinking. It was reserved however for the nineteenth century, and the inquiring spirit of the present age, to establish the doctrine of the utility of blood-letting in fever permanently and beyond the possibility of change. For, as has been beautifully observed by Dr. Armstrong, "An active and impartial spirit of inquiry has pervaded almost every department of the profession; and its continued operation promises finally to place medicine in the class of the more perfect sciences." I hasten to put the finishing stroke to this historical outline by

recording the names of Armstrong, Cheyne, Bateman, Percival, Duncan, and Welsh; men whose labours have effected much towards the completion of an object so desirable.

But we are pledged to prove,

1st. That blood-letting is by far the most efficient agent ever wielded in the contest with fever.

The general truth of this proposition is proved by the fact, which I challenge the enemy of the lancet to disprove, that the mortality of continued fever is much less now than formerly, since the trial of cure by the lancet. "That blood-letting lessens the mortality of fever," says Dr. Welsh, "I conceive to be established beyond all possibility of doubt, not only by comparing the mortality in our hospitals, since the adoption of this practice, with that of other hospitals, but by comparing the mortality in the same hospital, under the same physicians, and in the same fever, previous to and after venesection was employed."* A similar con-

* Welsh on Blood-letting in Fever, p. 169.

clusion is suggested by the results of my own experience. The reader, by adverting to the tables, will find the mortality diminished by the due employment of the lancet. But a further discussion of the merits of the practice we advocate, in all circumstances of danger, will place this matter in a still clearer light.

It may confidently be asserted, that in all severe cases of the disease in which recovery takes place without bleeding, that event may be considered *an escape* rather than *a cure.* The distinction may seem an invidious one to the abettor of the doctrines which it is my aim to refute. Nevertheless it is sanctioned by a reference to the pathology of fever, no less than by the plainest dictates of experience. Nothing can more forcibly illustrate my meaning than the following memento by Dr. Bateman. "I lately witnessed the complete and immediate extinction of the fever in two cases, (not in the House of Recovery,) by a single blood-letting: the one performed on the fourth and the other on the fifth day. The head, in both, was considerably affected with threatening delirium;

but the pain and intellectual disturbance were instantaneously removed, and the patients left their beds in two days. In one of these patients an attack, marked by precisely the same symptoms, had occurred three years ago, which was not arrested by a free cupping; but the fever went on with severity, and terminated with a formidable derangement of the intellectual functions, and a tedious recovery."* The same remark applies with equal force to those cases, in which, though the danger is considerable from an early period, the lancet has only been resorted to late, and in circumstances of extreme peril, as in cases (1, 18.) At the same time such formidable cases, formidable chiefly from procrastination or neglect of prompt and vigorous measures, unequivocally demonstrate the power of this agent, when used comparatively late in the disease, and when the most appalling symptoms exhibit themselves; especially when we advert to the inefficacy of leeches and blisters, as in cases (15, 24, 36, 38,) to avert

* Bateman on Contagious Fever, p. 99.

death, under similar circumstances. In nothing however was the power of the lancet more conspicuous than in the rapid subsidence of delirium, as in cases (1, 18, 49, 65,) notwithstanding the deep hold which that symptom had taken on the sensorium, and though acute functional disturbance had nearly lapsed into fatal organic lesion. It must be allowed, indeed, that the peril was much more imminent and proportionate to the delay. Used still later, and when incipient effusion perhaps, or approaching gangrene, has sapped the foundations of life, the lancet will only accelerate death. In reference to a dilemma of this nature, Dr. Armstrong has therefore observed very truly, "Unfortunately the physician is often consulted in febrile disorders, when they have become all but desperate by their long continuance; and if he should attempt to save the patient by a daring measure, will generally have the mortification of seeing him sink rapidly after its employment."* Every prudent man, therefore,

* Practical Illustrations, p. 149.

will avoid risking both his own reputation and that of the practice he would so ill recommend, in a case where seeming decision may be denounced temerity, and where utter hopelessness proscribes exertion. Dr. Beddoes indeed has advised a liberal employment of cordials in the succeeding stage of collapse. "A case occurs in the decline of fever, where the most decided use of cordials and tonics can alone rescue from impending destruction. It is where, from *internal gangrene even* or general exhaustion, the temperature and powers sink together."* That recovery can possibly be effected under the former supposition almost exceeds belief. And accordingly I have on several occasions pushed the cordial plan to the fullest extent, in these circumstances, without any corresponding advantage. I have indeed succeeded in a few most desperate cases (though not in the present Epidemic;) but which, it appears to me, were examples of general exhaustion merely, accompanied perhaps with slight local inflammatory

* Beddoes on Fever.

congestions. The stimulant practice is doubtless imperiously called for here, and might not improbably be materially aided by the use of galvanism, agreeably to the suggestions of Dr. Wilson Philip.* One case of this kind occurs to my recollection, which I shall venture to describe.

The patient was a promising youth, the son of a shepherd, the stay of his family, and "their eldest hope." I found him supine and motionless, his chest heaving from laborious respiration, the skin bathed with cold and clammy dews, the pulse wavering and scarcely perceptible, and the countenance sunk and depressed, and its expression ghastly and death-like. Having opened the window to avail myself of the restorative powers of fresh air,† I seated myself by the patient, in whose fate I felt the liveliest interest, that I might note the ever varying indications of lingering life, which ap-

* On the Vital Functions, p. 296.

† "No cordial is so reviving as fresh air."—*Heberden.*

"Let the breezes blow upon him, and recal his almost departing spirit to life."—*Aretæus.*

parently was ebbing fast away. The smallest improvement in the chilled temperature of the extremities; any amendment, however trivial, in the respiration or pulse, or in the languishing powers of mind, I hailed with delight. But there was a long continued struggle between hope and despair; for it was one of those cases in which the most decisive use of cordials can alone avail. It verified too the remark of Dr. Beddoes, that wine and other cordials often exert but a momentary influence, requiring a persevering repetition. Notwithstanding the repeated exhibition of cordials and nutritives, my patient gradually became worse and worse, until actually

> "Set were his teeth; his fading eye
> "Was sternly fixed on vacancy!"

Bottles, and a bladder filled with hot water, were now applied to the feet and scrobiculus cordis. I wrenched open his rigid jaws, and poured down his throat copious draughts of wine and volatile alkali. I had done all that art could suggest; and I awaited the effect of

these measures with fearful expectation.* In a short time, the pulse resisted the finger; intelligence relumed the eye and countenance; and he awoke as from a dream. At that moment I placed a sprig of wall-flower beneath his nostrils; and he whispered—"Oh, how sweet!" The vital actions finally established themselves.

Let it not be supposed however, that such cases of extreme exhaustion are peculiarly the sequelæ of the evacuant practice. In referring to my own observation, I can affirm, that they appear to occur, if not exclusively, at least much more frequently, under a plan of treat-

* "We have indubitable instances, in which water dropped on the pit of the stomach has immediately caused pulsation in the heart of an infant, in whom animation has been suspended. A fever patient is not equally susceptible. But excitability may be transferred even to his torpid interior by superficial cold; and excitement then produced by stimulation. We shall hardly ever err mischievously, if we make this last effort when the powers are sinking, and inflammation passing into its cold stage. In two such instances I have adopted the momentary but repeated application of a cloth wet with ice-cold water to the pit of the stomach and to the head, administering stimulants between whiles. In both I was successful. Volatile alkali is probably one of the stimuli best adapted to such cases."—*Beddoes on Fever*, p. 221.

ment which excludes the lancet. And a very good pathological reason can be assigned for the fact. The truth is, that by those local congestions which are the cause of endlessly repeated reaction, the duration of fever is incalculably augmented, and the powers of life exhausted. On the other hand blood-letting has evidently the power of abridging the duration of fever. "Instances of this fact," says Dr. Welsh, "might have been multiplied to an immense extent, almost to half the number of patients received into Queensbury House."*

It is a question, which perhaps with our present knowledge of the powers of blood-letting in fever, cannot be definitely answered, how late in the disease the lancet may be employed? This, as it appears to me, must depend on a variety of existing circumstances, but chiefly perhaps on the form of the disease, and the violence of the preceding series of febrile actions. Dr. Armstrong has distinguished between cases, in which the local inflammation is acute, and

* Welsh on Blood-letting in Fever, p. 169.

those in which it is of a lower kind or sub-acute, observing, that as in the latter "the supervention of the stage of collapse is proportionably delayed," in them it may be used at a much later period, as late indeed occasionally as the ninth day. The practice of some of venturing on small general bleedings several days later, he considers to be hazardous. Dr. Bateman has not attempted to settle this question. He advocates the employment of the lancet however so late as the tenth and eleventh days; and instances the case of a young lady from whose arm seven ounces of blood were taken in the eleventh day of a relapse, yet in the fifth week of fever, as she had been but a few days in the interim convalescent. But to shew how vain and futile are all precise rules, without reference to existing circumstances, Dr. Welsh presents his readers with five cases "to prove the propriety of bleeding, whenever the symptoms seem to require it, without any attention being paid to the duration of the disease." Of these his cases one was bled to twenty-two ounces on the nineteenth, another to thirty-four ounces on

the tenth, another to eighteen ounces on the seventeenth, another to sixteen ounces on the fifteenth, and another to twenty-five ounces on the fourteenth day of fever. I shall now give the results of my own experience on this most important question. Case (1) was bled from the jugular vein to twelve ounces A. M. and ten ounces P. M. on the tenth day of fever. Case (2,) after a previous bleeding to twelve ounces on the second day, lost six ounces of blood from the jugular vein, in conjunction with twelve leeches to the temples, on the seventeenth day of fever. Case (9) was bled to seven ounces on the twelfth day; but effusion having in all probability already taken place in the brain, (for continued delirium, subsultus tendinum, and the whole train of symptoms indicative of cerebral inflammation were fully developed,) the operation failed to afford relief, and, instead of retarding, seemed to accelerate a fatal issue. Case (18) was bled to twenty-four ounces on the tenth, and to twenty ounces on the eleventh day of fever. Case (41) was bled to five ounces and syncope on the seventh day. Case (35) lost

twelve ounces of blood on the second, twenty-four ounces on the sixth, eight ounces on the ninth, and twelve ounces on the tenth days of fever, besides repeated leeching afterwards. Case (46) was bled to nine ounces and syncope on the fourteenth day. Case (54) to six ounces on the seventh day. Case (60) to six ounces on the fifteenth day. Case (65,) aged six, to four ounces on the seventh, and again to four ounces on the eighth days. Case (67,) aged thirteen, to eight ounces on the sixth, and to six ounces, aided by a dozen leeches, on the eleventh day. Case (68) to sixteen ounces on the ninth, and to twelve ounces on the tenth. Case (69) to ten ounces on the tenth, and again to twelve ounces on the twelfth. Case (70) to sixteen ounces on the fifth, besides a dozen leeches, the patient being sixty years old.* In these bleedings respect was of course had to age, constitution, existing symptoms, &c.; all proved salutary,

* Since these pages were written, I find that Dr. Prichard, in his History of the Bristol Epidemic Fever, has contributed very materially to extend our knowledge of the powers of the lancet, in the latter stages of the disease.

except the one specified above. But as no precise rule, without reference to existing circumstances, can be laid down as to the lateness of the period, when it is not only safe but expedient to use the lancet; so neither can we fix by any thing like mathematical precision the quantities of blood which may be abstracted. It is absurd to suppose, that any invariable rule can be stated on such a subject. "The invariable nature of the laws which preside over physical phenomena," says Mr. Lawrence very justly, "enables us to submit to calculation all the facts in those sciences; but the application of the mathematics to vital action can only lead to very general formulæ, both because the different data are uncertain quantities, and because we cannot be sure that we have taken them all into consideration." The experience of Dr. Welsh, whose bleedings have an air of extreme novelty from their immense magnitude and extent, is calculated to remove our fears of taking too much in this disease. While it teaches us the comparative impunity of making so free with the lancet, the indispensable necessity of

doing so is another question. Certainly if it were demonstrable, that the mortality in fever would be sensibly lessened by his mode of practice, we have then a strong argument for its adoption to the full extent, at least in a similar form of fever. Dr. Welsh states the mortality, under the new plan, to have been about one in twenty. But the evidence is incomplete till we have the results of several years, as most physicians admit a notorious difference to exist in the degree of fatality of fever in different seasons and under different circumstances. Thus, in Dr. Bateman's practice, the mortality has ranged from one in six, through an intermediate series, to one in fifteen. In the Manchester House of Recovery again it has fluctuated from one in five to one in twenty. In Dr. Cheyne's practice, an avowed advocate of limited depletion, the mortality does not exceed one in sixteen to seventeen. The mortality of the Fever Hospital in Cork for many years has only been about one in thirty; and in some of the Dublin Hospitals has not exceeded one in twenty-three. It thus appears, that the new

plan does not surpass in brilliant success all its predecessors, though it may be fairly allowed to rival them. Its application to every possible form of the disease, experience has not yet established.

On the several points under discussion, we shall subjoin, without apology, the opinions of Dr. Cheyne.

" It is obvious that no specific rule for regulating the quantity of blood to be drawn can be established: this matter must always be left to the discretion of the practitioner. It is my duty, however, more especially as I have the name of being an advocate for blood-letting in fevers, to state, that several cases have come to my knowledge in which full blood-letting, practised when the disease was confirmed, proved injurious: great prostration followed; and although the local determination, which probably demanded a cautious use of the lancet, was subdued, yet the struggle was more dubious than it otherwise would have been. In two instances I had reason to think, that full blood-letting was productive of fatal effects; one of

these was characterized by vigilance, a tongue scarcely affected, great quickness of the pulse, dun confluent petechiæ: both cases were atactic. But these were instances of the abuse of blood-letting. There are many cases of fever, in which blood-letting is inadmissible in any stage of the disease; and there are many cases in which early bleeding would be salutary, while late bleeding would be ruinous." He afterwards adds, "In the Hardwicke Hospital twelve ounces of blood were seldom exceeded at one bleeding; ten ounces might be considered the average quantity taken from an adult. There were doubtless some few patients who lost a larger quantity at once; but so impressed was I with the danger of carrying this excellent remedy too far, that when twelve ounces of blood were to be exceeded, I considered it my duty to superintend the operation."

Some peculiarity, arising from situation or the nature of the epidemic, may possibly have existed to excite so much caution. Dr. Welsh's experience, as well as Dr. Duncan's and others', is conclusive as to there being circumstances

capable of relaxing somewhat the rigour of these restrictions.

Drs. Percival and O'Brien have both asserted the existence of a peculiar debility in cases of cerebral inflammation, rendering it unsafe to employ so free a depletion as we should adopt in pure phrenitis. My own practice, in case (18,) in which forty-four ounces of blood were taken at two bleedings, and in case (55,) in which thirty-six ounces were drawn at thrice and in quick succession, shews that the rule is not absolute. I might refer too to my brother's cases.

The practice of bleeding in typhus fever hinges on the two-fold principle, that fever debilitates by its continuance, and congestion or inflammation tends to destroy life. This principle, in its application to practice, is an example of the union of contrarieties. All the embarrassment consists in the seeming difficulty of reconciling the treatment of inflammation with the safe management of a long continued fever, sufficiently exhausting of itself without the additional debility arising from loss of blood. A

choice of evils undoubtedly presents itself to our view—*inevitable death in all serious cases*, if, in our anxiety about the duration of the disease and the debility consequent on that as well as on bleeding, we neglect the only adequate measures to remove inflammation; on the other hand, *great debility in all severe and protracted cases*, if, in our anxiety about the consequences of inflammation or congestion, we disregard the phantom of debility and resolutely unsheath the lancet. Fortunately however it will be found, that by the power which the lancet has of shortening the disease in many cases, the debility is a less urgent consideration. Besides the debility, in whose production the lancet has had a chief share, will be found much more manageable than the debility of an unimpeded fever. In the one case, the nervous power, freed from its oppressive accumulations, is competent soon to carry on the vital processes; and hence appetite returns, with digestion and assimilation: in the other, all these auspicious omens of returning health are long before they exhibit themselves, and repletion and recovery are pro-

portionably delayed. Admitting even the difficulties on the score of debility were greater than they really are, still that in a choice of evils any should prefer the greater, might astonish us. Yet the Brunonians and anti-venesectionists have virtually been guilty of this inconsistency. It may be granted, indeed, that it was not the duration of fever alone which terrified them; as they seem to have connected certain ideas of a rapidly debilitating malignity with their conceptions of typhus fever. Without denying their doctrines in toto, we may safely assert, that they were carried to a most immoderate length, and exerted a most baneful practical influence. "It is curious to see," says Dr. Welsh on the same subject, "how a practical caution, directed to extreme cases of fever, had gradually glided into the importance of a general principle, and from that to establish new doctrines, that at length terminate in abrogating the original practice, of which it formed only a part." (p. 124.) Some excuse may be allowed to the Brunonian fears of debility, from the evident diversity of character of

different fevers. It is true, that in general their fears were founded on a superficial and most erroneous apprehension of the nature of the debility in question. Many of the older observers, however, saw through the mists which obscured the understandings of their successors. Huxham learnt by experience to disregard apparent debility; and both Hoffman and White refer to internal congestions as the paramount cause of extreme depression. Even experience itself seems to have contributed somewhat, in addition to the suggestions of false theory, to strengthen their aversion to bleeding. Their experience, however, related to a different scene of things from that which modern experience recognizes. Dr. Bateman has shewn with much acuteness, that not knowing the virtues of cool air and other modern improvements in the management of fever patients, our forefathers were prevented from witnessing the happy effects of bleeding and other evacuants, "by the artificial condition of the patient and the regimen enforced." (p. 137.) After all, something must be granted to the peculiar type of an epidemic; as modern

experience, with all the aids of modern improvements, evinces, (if any credit be due to the observations of Dr. Cheyne,) that every form of fever does not bear the lancet equally well. "In September," says he, "those patients who were blooded from a vein recovered slowly, nor did they seem to obtain that immediate relief from blood-letting which had taken place during the four or five months before. Local bleeding was more practised than general."* But as the epidemic in this neighbourhood, as the recent Edinburgh and London epidemics, were unconnected with any peculiarly debilitating activity or malignity, and, as all experience proves, could bear the lancet, I shall divest the subject of all considerations of that nature, and resume the inquiry, how far the treatment of inflammation or congestion, and the right management of fever, are compatible. Happily there is no actual discordance: and the debility consequent on the duration of fever, instead of prohibiting the lancet, serves only to guard us against ex-

* Dublin Hospital Reports, Vol. I. p. 27.

cessive or late venesection, at least in general. And here I beg to revert again to Dr. Cheyne's restrictions on these two important practical points; which agree with the spirit of the directions of other impartial observers, especially Drs. Armstrong and Bateman.

The next particular we have pledged ourselves to prove is,—2ndly, Blood-letting, as a measure of precautionary safety, is indispensable in the majority of cases.

"There are many cases of fever, in which blood-letting is inadmissible in any stage of the disease," is the assertion of Dr. Cheyne. The varieties of fever in which circumstances conspire to verify the truth of the observation, appear to me, from an attentive survey of the peculiarities of most of the fevers described by recent observers, to be so rare, as to constitute exceptions to a general rule. Other exceptions, however, have been urged to blood-letting as a general measure. Dr. Percival has laid great stress on the modification of the disease by the four seasons, in conformity with Sydenham's remark—"This however I am convinced of,

from numerous careful observations, that the same method which cures in the middle of the year may possibly prove destructive at the conclusion of it." (Sect. I. ch. 2, 3.) Admitting the general influence assigned to the seasons, the frequency of inter-currents of widely different character, should put us on our guard not to be imposed upon by a system of artificial rules, greatly to be dreaded from their partial application. My own experience is a memento on the greatest diversity of character in the fever I had to treat, in defiance of the influence of the seasons. Others have dwelt on the wholly artificial distinctions of simple and complicated typhus. The fact is, the disease is intrinsically the same in nature though differing in degree. In some subsequent pathological observations, we shall attempt to shew, that distension of the extreme arteries, and distension of the veins, are both essential conditions of that morbid derangement which takes place in fever. It will appear too, that the disease will have an inflammatory or congestive character as one or other of these conditions prevails in excess.

While we contend, however, for a morbid derangement of the circulation in every case of fever, we admit that this does not go on in every instance to the production of palpable inflammation or congestion. On this admitted fact, Dr. Armstrong founds his species of simple typhus; and Dr. Bateman makes the same distinction. The distinction may be defensible for the purposes of artificial arrangement, but not for practice. Notwithstanding the agreement of the two physicians just named in dividing fever into simple and complicated; still a marked difference may be perceived in the accommodation of their rules of practice. Dr. Armstrong, I cannot but consider, is too artificial in this particular; Dr. Bateman much more philosophical. The former having described his varieties of fever, next adapts, with singular precision, his varieties of treatment: but Dr. Bateman's treatment comprehensively applies to fever as a whole, without being so minutely accommodated to its varieties. In no particular is this remark so strikingly exemplified, as in the directions about the employment

of the lancet; which Dr. Armstrong asserts "may be safely dispensed with in the majority of cases of simple typhus." (p. 124.) Of course he excludes venesection from the list of his remedies, "reserving it for the threatening of some visceral inflammation." This surely is inconsistent with his usual sagacity, especially after acknowledging that "it may indeed be regarded as an axiom, that bleeding, if it should not do good, will hardly ever do any harm in the commencement of febrile diseases." But if it be considered, as I have repeatedly found it, that what to day wears all the delusive appearances of a case of simple typhus shall to morrow unequivocally and unexpectedly put on the characters of the inflammatory species, where is our prudence and foresight not to provide against so fearful a change?* Surely Dr. Armstrong has calculated on greater penetration being brought to bear on the disease, than is in general characteristic of the mass of practi-

* After these strictures were committed to paper, I felt happy to find my opinion strengthened by animadversions on Dr. Armstrong's practice, of similar import, by Dr. Welsh.

tioners. Much more caution and policy give value to Dr. Bateman's instructions, who states the decided advantages of early venesection in a variety of cases of fever indiscriminately.

Upon the whole therefore the rule of bleeding in every case, when we are called in early, in order to avoid the unpleasant dilemma of being surprised by unforeseen danger, seems to me generally, though not universally applicable. We have instanced the exception of peculiarity of type. We might further name, as exceptions to the practice, extreme debility, and a peculiarity of constitution not bearing general abstractions of blood. In the practice of medicine, indeed, nothing is more annoying than the union of congestion with constitutional debility; as for instance where in a state of health we find cold hands, a weak and hurried action of the arteries, frequent perspirations, weak digestion, and great nervous irritation.* The circumstances

* And yet great stress cannot be laid even on this exception: for the most experienced physicians have remarked, that there are cases of constitutional idiosyncrasy, where, under ordinary circumstances, the loss of blood is so ill

which would forbid the use of general bleeding, with a view to anticipate danger in fever, are not therefore very numerous. In the latter part of my practice, I have employed this method with scarcely any exception, and always with the happiest effects. In several of them, though the fever went on with considerable severity for some time, we were never appalled by the development of a single untoward symptom; though from the violence of the attack in some instances, great danger would in all probability have succeeded to less active measures. Sometimes delirium never appeared at all; at other times it was so slight as scarcely to deserve the name. In one case bleeding on the second day "arrested the fever" instantaneously. The same

borne, that a very few ounces taken from a vein, or even by a leech, is followed by syncope and by excessive languor, and other ill consequences, for days and weeks afterwards; and yet the same patient under an attack of febrile symptoms, bearing even the slightest marks of inflammation, shall suffer a moderate bleeding without inconvenience, and even repeatedly during the progress of the disease with manifest advantage. For this remark I am indebted to Dr. Storer of Nottingham.

happy consequence was observed in a second instance also. But it is imperiously necessary that the bleeding should be a free and decisive one, and that in urgent cases it should be repeated with a vigour proportioned to circumstances; otherwise it will be more mischievous than salutary, for it may, if deficient, conceal increasing danger under an imposing but deceitful appearance of improvement. Thus, in case (42,) eight ounces of blood abstracted from the jugular vein completely relieved an intense head-ache; and though the bleeding was followed by the successive application of leeches, it proved wholly incompetent to remove those latent congestions which maintained the fever, and ultimately crushed the brain. In the same way leeches in cases (1, 18) gave evident relief; but while they obviated pain, were wholly inadequate to effect a radical improvement. To anticipate danger, therefore, we must bleed generally as well as locally; and our bleedings must be executed under the impression of affording not temporary merely but radical relief. And in severe cases the measure may require to

be repeated several times. Bleeding, in short, I consider to be as much a remedy for fever as it is for inflammation; its virtues are strictly febrifuge. Sydenham without doubt bled to cure fever, when he did so to lessen excessive action, or accelerate sluggish motion of the circulation. Baglivi and Mead began the cure of all fevers by bleeding. Nature not unfrequently points out the appropriate remedy, when by a free epistaxis she mitigates fever and ensures recovery. On the subject of anticipating danger in fever by general bleeding in the earliest periods of reaction, it cannot excite our surprise, that we should meet with so little information in the works of our best hospital writers on Fever. The fact is, their opportunities are limited for instituting the proper series of experiments, from the frequent late application of patients for relief. Thus Dr. Cheyne tells us that his patients were in general brought in from about the fourth or fifth to the tenth or twelfth day of fever. "Of these," says he, "some few young and plethoric persons were let blood in the commencement of the fever, to

moderate general febrile reaction, as indicated by flushing, increased heat of the surface, thirst, and high-coloured urine, together with a deficiency in all the secretions. But this practice was confined to those who were admitted on the second, third, or fourth days of the fever, with a manifest tendency to inflammation: *comparatively the number was inconsiderable.*" (Dub. Hosp. Rep. Vol. I. p. 15.) On the whole there appears to me the greatest truth in the remark of the same respectable authority, that " Much yet requires to be done, before we can consider the rules for administering purgatives and *blood-letting* in the different varieties of fever, and in their different stages, as sufficiently exact."

In very advanced stages of the complaint, I have seen local pulmonic congestions relieved by leeches and blisters. In circumstances of extreme debility, benefit followed the application of blisters alone, without topical bleeding. Opiates were simultaneously employed. I cannot doubt, (though I do not speak from experience,) that when the strength will at all admit

of it, small general bleedings would yield more prompt relief. Though leeches and blisters, or blisters alone were available, the amendment was slow, and in one instance or two a state resembling phthisis pulmonalis, with irregular hectic fever, supervened. I think we should be justified in the attempt to obviate a condition so perilous as this by a cautious employment of venesection. The remedies which, in conjunction with local evacuation, I found most efficacious to restrain hectic febrile action and its consequence profuse sweating, were the digitalis and sulphuric acid, and half a grain or a grain of plumbi superacetas nightly with opium.*

I have not much to offer on the virtues of other remedies in fever, besides venesection. I found mercury a valuable auxiliary to the lancet, though I always premised adequate depletion by the latter. I employed it in the inflammatory and congestive forms of the disease for the same purpose, and with the same

* Dr. Forge of Driffield suggested to me the use of plumb. superacet.

effects, as when given to suspend the adhesive stage of simple inflammations of the viscera. Under these circumstances, and after due depletion, I saw the most beneficial results from its cautious employment. I preferred the pil. hydrargyri, in moderate doses, so as not to pass off by the bowels, in conjunction with digitalis,* to calomel in union with opium, as recommended by Dr. Armstrong. In two cases in which I thus administered calomel, a most severe dysenteric purging followed its exhibition. In a few instances, where the disease was protracted, with great restlessness depending apparently on excessive nervous irritation, I found moderate doses of laudanum, with antimonial wine, procure sleep and hasten recovery. It abated cough moreover at an advanced period, in conjunction with local evacuation. Friction of the abdomen with an anodyne liniment, preceded by fomentations, was useful at a late stage, in conjunction with mild aperients, in

* Dr. Simpson of Malton employs mercury thus in inflammatory complaints.

removing pain unaccompanied with tenderness on pressure. In the early periods of the disease, I employed saline cathartics, and occasionally calomel, with a liberal and steady hand, taking especial care however to avoid hypercatharsis. As the debility increased, I either combined camphor with senna mixture without salts, or substituted castor oil or rhubarb. If any measure can be substituted for bleeding, it is free purgation, which in case (12) invariably averted a strong tendency to pulmonary organic mischief, unaided either by the lancet or leeches.

Experience soon convinced me of the illusion of collapse supervening after the first week of fever in all ordinary cases. Accordingly I latterly delayed cordials in most cases till about three weeks had elapsed, and then allowed wine only in the most sparing quantities. It is unfortunate that Dr. Armstrong, by the treatment and regimen advised for the later periods of simple typhus, should have ratified the similar error of Dr. Cullen, who supposed an excitement of seven days would induce a degree of debility necessary to be met by cordials. Dr.

Bateman has thoroughly dispelled this dangerous illusion, reserving supplies of wine for a more advanced period and more actual exhaustion. Given at an early period, cordials augment debility by increasing fever and favouring local determination. Similar restrictions apply to diet. And to my great care to avoid excesses in this particular, and by confining my convalescents to a milk diet, I attribute the comparative infrequency of relapse in my practice.

On one remaining branch of the subject, I beg to add a few words. Nothing is more usual than to meet with statements, in the best practical writers, of the simplicity of the disease, as it occurs in children.* The record of the Bridlington Epidemic is of value, as shewing that childhood is by no means an invariable protection from its most malignant attacks. In fact one of its most prominent features was the severity of the disease in children and young subjects; who will be found to have constituted

* Percival, p. 40. Bateman, p. 33.

a majority in the list of fatal cases. The young practitioner will thus be put on his guard not to relax from that close observation necessary to enable him to detect the earliest development of danger. Many excellent authorities also advise milder measures for children than for adults. Thus Dr. Prichard, in his History of the Bristol Epidemic, observes, "In persons of weak habits or much exhausted, and *in children under ten years of age*, instead of bleeding from the arm or temporal artery, leeches were applied to the head."* The rule, as applicable to the eruptive fevers, has been ably controverted by Dr. Armstrong, in his invaluable remarks on the treatment of measles.† And as it applies to typhus fever, my own experience warrants no such distinction. A reference to the Tables will shew, that in several instances leeches were wholly inefficacious; while the lancet was signally successful in others of equal danger.

* ~~Bateman~~ Prichard, p. 55.

† Armstrong on Scarlet Fever, Measles, Consumption, &c. p. 148.

CONCLUDING OBSERVATIONS

ON THE

NATURE OF FEVER.

In no work on Fever, which I have yet read, has that elucidation been thrown upon the subject by the application of physiology, which it appears to me capable of affording. Clinical investigation is the earliest and most hacknied method of prosecuting the subject. Morbid anatomy has also latterly been cultivated with a zeal only proportionate to the services which it is well calculated to afford, and of which Dr. Beddoes has to an unparalleled extent availed himself. But the field of physiological investigation of the subject lies open for cultivation. We must not abandon any mode of inquiry, however, which is really serviceable, or manifest an undue partiality for any one to the exclusion of others; but by turn press into our service the information yielded by the three grand sources of our knowledge,—Clinical Ob-

servation, Morbid Anatomy, and Physiology. Truth is less likely to be attained if the means of inquiry be narrowed by an omission of any species of evidence. The fatal errors of the Edinburgh school arose from too implicitly confiding in the plausible but delusive deductions from clinical reasoning; and their fallacy was detected by the demonstrations of morbid anatomy. While a spirit of deeper research has thus corrected the errors of a superficial observation, it must be granted nevertheless that morbid anatomy, alone and unassisted, presents us with results altogether in the gross. To assign to each organic lesion its exact influence in producing the fatal result, as well as to find in their less complete development, by a careful collation of symptoms with progressive organic derangements, a satisfactory explanation of the phenomena of the disease through its different stages, is the province of physiology; whose business it is to calculate the vital forces under every possible condition of health and disease. "A considerable length of time," says Dr. Wilson Philip, in his inimitable work on Physio-

logy, "alone can shew how far the principles which seem to be established by the experiments laid before the reader in the preceding inquiry, may tend to improve the knowledge and treatment of diseases."* With a deep sense of obligation to this author for his important physiological discoveries, and a conviction of their general truth, I purpose at present to render them subservient to an explanation of the phenomena of fever. Dr. Philip himself has preceded me in the inquiry. He has not gone far however into the subject, and has left many of the phenomena unexplained. The reader will perceive to what other illustrious names these pages stand indebted.

In fever the attention is irresistibly drawn to the disordered condition of the nervous system. When we consider indeed the leading part which this system takes in the business of life, that it pervades every tissue and texture, is directly or indirectly concerned in the economy of the vital organs, and when we include more-

* Dr. Wilson Philip on the Vital Functions, p. 77.

over the intimate connection and relation subsisting between it and the vascular system, we shall not feel any surprise that its disordered condition should constitute so prominent a feature in the physiognomy of typhus fever. In attempting to trace the obvious errors in the economy of the nervous system to their latent cause, we are led to conclude, notwithstanding the complication and entanglement of the two sets of organs in the process of fever, that the vascular system is in reality most in fault, and thus join issue with Dr. Armstrong, when he asserts that "if any particular system be more affected than another, it is unquestionably the sanguiferous, through which the *permanent* effects of fever are chiefly to be traced, and by which the state of the brain and nerves at least seem eventually regulated."*

That a vitiated state of the blood-vessels is the true explanation of numerous aberrations observed in the functions of the nerves, in a variety of diseases, is a doctrine which appears

* Armstrong on Typhus Fever, p. 19.

to be establishing itself on the ruins of that superannuated hypothesis which ascribed every thing to nervous debility. Mr. Earle has thrown much light on this doctrine in a valuable paper on Animal Heat, in the seventh volume of the Medico-Chirurgical Transactions, in which he shews the dependance of tic doloreux and many other painful topical affections on a local determination of blood. Of late years the nature of amaurosis has been explained on similar pathological principles, especially at the Eye Infirmary in London. Formerly at that institution, as elsewhere, it was considered to be a disease purely nervous, and treated accordingly by nervous medicines, electricity, &c. but with scarcely any success. One or two cases at most were cured annually. But when the true congestive character of the disease was once understood, and more rational measures were adopted for its removal, the treatment was much more successful. The same principles elucidate, in most cases, also the real nature of insanity. Mr. Lawrence has asserted, on the authority of an extensive experience in post-

obituary inspections of the brain in lunatics, that that organ invariably exhibits traces of derangement in its vascular structure. The result of Dr. Cheyne's researches in the morbid anatomy of apoplexy is favourable to the opinion that pure nervous apoplexy is comparatively rare; while sanguineous determinations usually constitute the essence of the disease.* Apoplexy, paralysis, epilepsy, chorea, reverie, and various fugitive head-aches, are all dependant in general upon pressure in different degrees from congestion of the blood-vessels in ever varying degrees of intensity. "What strongly indicates," says Dr. Cheyne, "that the barriers are sometimes but slender which are raised between disorders of the brain, generally

* "I mention first, the remains of an excited state of the minute arteries of the brain and its membranes, this probably being the most important, as it is the most unvarying appearance; then the extravasation of blood, probably the consequence of the excited state of the vessels; the turgescence of the venous system; the enlargement of the ventricles, partial or general; and lastly, the serous effusion which is generally found in various parts of the brain, and which would seem to imply previous absorption of the brain." —*Cheyne on Apoplexy and Lethargy*, p. 24.

distinguished by the most opposite symptoms, and that *a slight modification in the vascular action* may produce very opposite effects, is, that madness has been known to alternate with paralytic weakness."* That a morbid condition of the vascular system is essential to fever, is proved by every species of evidence applicable to the inquiry. Morbid anatomy yields its testimony. There are few cases on record, in which the most glaring lesion of vascular structure in parts the most essential to life does not present itself. Nor are we authorised by our present tests of morbid structure in an organ like the brain, the refined delicacy of whose minutest vessels may possibly elude our researches, to assert that in those rare cases, in which no organic lesion is discernible, that this is not the case. Clinical investigation gives its evidence on this subject; for precisely the same signs of local engorgements are detected on submitting the patient to those modes of examination, by which we ascertain the exist-

* Cheyne on Apoplexy and Lethargy, p. 17.

ence of inflammation and congestion in simple affections of the viscera. Curative treatment yields its testimony. The removal of delirium, the relief of head-ache and other local pains, especially that general feeling of soreness of which patients so frequently complain, the impulse often given to the depressed vital powers and circulating organs by the abstraction of blood,—all point to a morbid condition of the circulation, either general or local. The salutary effects of purgatives and other evacuants are in proof of the same position.

But admitting the fact, that in fever such a state of the vessels exists within the range* of the nervous system, sufficient to interfere with all its functions, it has been asked, " whether

* The derangement of vessels is not always found in the nervous system, but sometimes only in some of the vital organs, or in both situations. That such derangement of other organs should disorder the functions of the nervous system, is agreeable to the analogy afforded by a variety of surgical injuries inflicted on remote parts, and yet powerfully affecting the sensorium. Owing to that sympathetic connection which the common sensorium maintains, through the medium of the nerves, with other organs, it sometimes simulates all the characters of an idiopathic affection.

it is not the production, rather than the precursor, of febrile action?"* To this inquiry it is more easy to attempt a reply, than to obscure questions respecting the cause of febrile action. All discussions about the invisible agencies of contagion must from their very nature be vague and unsatisfactory; and in no point are the systems of Cullen and other advocates of debility more vulnerable than in the supposition of a *continued* sedative effect on the living principle, which they appear to have ascribed to contagion. That some injury is *at first* inflicted on the vital organs is indeed probable. In no subsequent period of the complaint, however, are we reminded, by any symptoms of debility, greater than what the existing disorder of the vascular system obviously occasions, of any deleterious impression still lingering with the nervous system. As to all practical purposes, we may afterwards safely lose sight of the primary cause of the morbid phenomena. But to return to the question, whether the morbid

* Med. Chir. Journal for 1818, p. 319.

state of the vascular system be not the production rather than the precursor of febrile action? it may be affirmed that such a condition of it is to be detected in both those relations. In all fatal cases of the disease dissection exhibits vascular derangements. The general agreement in the symptoms of fatal and less severe cases establishes the identity of their exciting cause. The very symptoms themselves, independantly of such agreement, point to an oppressive derangement in the circulation. The symptoms of collapse, which we know to be dependant on excessive engorgements, are faintly shadowed forth by the symptoms of the cold stage of fever, or, as Dr. Armstrong emphatically denominates it, "the stage of oppression." Not only do the earliest symptoms, but likewise those of the intermediate stages, point to the same oppressive cause, the same disturbance of the circulation, which, both at the commencement and close of the disease, intercepts more or less the communication of sensorial and nervous power. We must indeed allow for the variation occasioned by the reaction of the heart and arte-

ries; still, notwithstanding the altered complexion of the disease, it is the same face varied by the bolder expression of excitement. Oppressive local accumulations excite the heart and arteries to an effort, which seldom proves salutary or adequate to excite the debilitated vessels to an effort to surmount their over distension. In those few and slighter cases, in which the effort is not abortive, resolution immediately follows. On the contrary, it is to be supposed, that when this is not the case, the excitement may lead to greater local accumulations of blood. Original congestions of the vital organs thus increasing with the subsequent reaction, a permanent weight presses on the springs of life, and a continued cause of repeated reaction is established, which is at length either removed by art, spontaneously lessens and disappears, or sinks the patient into his grave.

The increased attention which has latterly been devoted to the investigation of fever, having brought the vascular system fairly into notice, its morbid derangements have been diligently analysed; and it is a singular coincidence in

the history of the inquiry, that the views of that distinguished individual, who had the merit of first giving the most connected and rational explanation of the various phenomena of fever, and distinguishing the different states of the circulation, by the rare sagacity which characterises his interpretation of symptoms, are sanctioned by an appeal to the scalpel. The speculations of Dr. Armstrong have been illustrated and confirmed by the labours of Dr. Macartney; whose testimony is emphatic on this point, that "the morbid appearances in typhus are not those of common visceral inflammation." Their peculiarity consists in the predominance of venous congestion. We have authority equally unexceptionable, however, to prove, that "there are unequivocal evidences of genuine inflammation, accompanied with those appearances of venous congestion, which frequently distinguish these diseases from the proper phlegmasiæ."* It thus appears that venous congestion and arterial repletion, with their appropriate

* Percival on Fever, p. 103.

consequences, are separately or conjointly the concomitants of fever. The disease will consequently have a congestive or inflammatory character, as one or other of these conditions prevails in excess. High reaction marks inflammation; want of reaction congestion; while in mixed cases, and in the slighter forms of the congestive variety, an imperfect and partial excitement is gradually developed. Venous congestion is probably essential to every variety of the complaint; but it is only when it prevails in excess, unaccompanied with arterial repletion, that it gives that decided peculiarity to the disease which distinguishes it from the ordinary forms of fever. The congestive variety, whatever may be predicated of its pathology, is no novelty in the annals of medicine. Some of the oldest and most faithful observers of nature have accurately pourtrayed its most striking features.* Slight degrees of arterial repletion

* Descriptions of congestive fever are to be met with in Sydenham, Huxham, Clark, Jackson, and others. A peculiarly interesting case is related in La Motte's Treatise of Midwifery. Transl. Thomas Tomkyns, Surgeon, London, 1746. p. 188.

may, like venous congestion, be considered an ordinary occurrence in fever, but only when it prevails in excess does it constitute the inflammatory variety of the complaint. The inflammations which occur in fever are wholly accidental, observing no sort of regularity as to the organ devoted to their attack. The profusion of evidence which Dr. Beddoes has collected on this subject, is decisive against the limited views of Ploucquet, Clutterbuck, Marcus, and others. On the authority of a most extended research into the records of morbid anatomy, he asserts the stomach to be most frequently inflamed, next perhaps the brain. All experience proves that in the epidemic of these islands the brain and nervous system are more prone to inflammation than other parts. The frequency of cerebral inflammation is a fact for which a good anatomical explanation may be given. "In fever," says Dr. W. Philip, "inflammation is particularly apt to arise in the brain, because the blood being returned thence by membranous canals, which cannot partake of the increased excitement of the central parts

of the sanguiferous system, this excitement necessarily tends to occasion accumulation of blood there,"* to say nothing of those delicate relations which the common sensorium maintains, through the medium of its nerves, with other organs, and by which it often participates in their diseases. Some peculiarity in the nature of an epidemic may also give a particular turn and bias in the inflammatory action to one part rather than another. The seasons of the year have an undoubted influence. And lastly, original or acquired predispositions eke out the train of hypothetical influences.†

Our knowledge of the immediate dependance of the nervous system on a regular play of the circulating organs for the correct execution of its functions, coupled with the proofs we have of a disordered condition of the sanguiferous

* Dr. W. Philip on the Vital Functions, p. 294.

† "I did meet with inflammation and gangrene of the uterus, the urinary bladder, the prostate and other glands (particularly the mesenteric) of the colon and rectum. These changes in the uterus and bladder chiefly occurred in people addicted to flagitious passions and immoderate venery."—*Dr. Eisfield of Leipsic*, 1799, *quoted by Dr. Beddoes.*

system in every case of fever, (a condition, which appears to involve every tissue and texture of the body, while its more exquisite derangements are spent on particular organs;) the aptitude of the nervous system to sympathize with other parts and participate in their diseases; and its own peculiar predisposition to inflammation or extreme congestion,—sufficiently account for the deviations observed in this system under the oppressive and disturbed state of the circulation in fever. The errors observable in the functions of the nervous system, as developed in typhus fever, it shall therefore be our next attempt to delineate. Before however we trace the various phenomena referable to its disordered condition, we shall venture to premise a brief outline of the most important points in the physiology of this system.

Dr. Philip has shewn, that "in the more perfect animals there are three vital powers, not directly depending on each other,—the sensorial, the nervous, and the muscular powers."*

* Dr. W. Philip on the Vital Functions, p. 208.

The muscular power is proved to be a principle in the animal economy wholly independant of the nervous system.* The sensorial and nervous powers are the principles which animate and

* The muscular power, including that of the heart and blood-vessels, is wholly independant of the nervous system, though capable of being influenced through it, as a medium, both by stimuli and sedatives; it is the vis insita or irritability of Haller. Experiments, in which the whole central mass has been removed without affecting the circulation, have established this important fact. Nay more, where the heart as well as the brain and spinal marrow are wanting, the irritability of the blood-vessels remains. "The monsters just described," says Mr. Lawrence in an interesting communication on Monstrous Productions in the fifth volume of the Medico-Chirurgical Transactions, "shew us, that cartilage, bone, ligament, cellular substance, membrane, intestine, can be formed where no brain, or nerve, or heart exists, and where there is nothing further than the action of the vascular system; and they lead us to conclude that the formation and nutrition of our organs are the functions of the blood-vessels only. At all events they exclude the brain, nerves, and heart from all participation in this process." That the blood-vessels can, by an inherent power, support circulation, as these facts demonstrate, has been proved also by experiments on frogs, in which the heart has been extirpated, and the web brought before the microscope; and on rabbits, in which the aorta has been tied, and the circulation in the mesenteric vessels clearly exhibited.—*Vide Dr. W. Philip's Enquiry*, p. 91, 217.

govern the nervous system, of which they are the characteristic endowments; and though both are concerned in the support of animal existence, this office devolves chiefly on the nervous power, while the sensorial wholly performs the duties of rational or intellectual life. This is not the place, either to advocate the sublime doctrine of the immateriality of the thinking principle, or to discuss the merits of Dr. Wilson Philip's opinion as to the identity of the nervous power with galvanism. Our province is to ascertain their separate functions in the animal economy prior to exhibiting the deviations observed in them under disease. "The sensorial power, as far as it is concerned in the functions of mere animal life, appears to consist wholly in receiving impressions and communicating them to the nervous power."* Susceptible of impressions also derived from the senses, it receives in this way all its ideas of outward objects. This is perception; and it is succeeded by the purely intellectual pro-

* Dr. W. Philip on the Vital Functions, p. 209.

cesses of memory, judgment, abstraction, and imagination. "The nervous power performs the more complicated functions of preparing the various secreting fluids, and causing an evolution of caloric from the blood; and it is the means by which impressions are conveyed to the sensorium. It appears also from many experiments to act only as a stimulus to the muscular fibre."* It thus appears that the functions of the nervous system, taken collectively, are the intellectual, sensitive, secretory, and calorific.

There is much difficulty in assigning to each part of the nervous system its appropriate uses and relative importance. Though it is impossible, in the present imperfect state of physiology, to assign to either the sensorial or nervous power the exact district which they occupy in the nervous system, still we may arrive at some general ideas on the subject by observation and experiment. That the brain is the principal seat of the sensorial power, is evident from the

* Dr. W. Philip on the Vital Functions, p. 208.

extinction of all purely mental phenomena by any severe injury inflicted on the encephalon; while no such effect follows extreme injuries of the spinal marrow. That any one part, however, is more the seat of mind than another, has not yet been ascertained by the results of cases; for almost every part has been removed by accident or injured by disease without the slightest affection of intellect.* It is foreign from our present purpose to touch upon the physiognomical system of Messrs. Gall and Spurzheim. Dr. Wilson Philip assigns the chief residence of the nervous power to the spinal marrow;† and indeed when we reflect on its situation, extent, and connections, and its union with the ganglian system of the great sympathetic, we shall be led to coincide in this opinion. Nevertheless that the brain is also to some extent its seat, is proved, not only by the communications of the sympathetic with some of the cerebral

* See an exposèa of the doctrines of Messrs. Gall and Spurzheim, in the Edinburgh Review for 1815, by the late Dr. Gordon, p. 243.

† Dr. W. Philip on the Vital Functions, p. 210.

nerves, but also by its giving origin to the par vagum, a division of which vital nerve instantly suspends the gastric secretion, and both paralyses and deprives the respiratory organs of their chief supply of nervous influence. The district of the brain most important to vital purposes, and therefore most the province of the nervous power, appears to be that part of the medulla oblongata which gives rise to the pneumo-gastric nerve. The perfection with which the vital processes were carried forward in one of the fœtal monsters described by Mr. Lawrence, in which this very district of the brain, with little more, was to be found, confirms the supposition. This very part however gives rise to a nerve, which influences the muscles of inspiration. It is, therefore, tributary to the sensorial as well as the nervous power; and Dr. Philip has most acutely shewn, that when death follows its destruction, it is by interrupting the communication of volition to the respiratory muscles. After all, however, the spinal marrow would seem to be the principal seat of the nervous power. We are under in-

finite obligations to Mons. le Gallois for drawing our attention to the immense importance of the spinal marrow in the animal economy. Nevertheless he evidently magnifies its utility, conferring upon it offices which it cannot execute; as for example, that it supports the action of the heart, an organ which recent experiments have proved to be wholly independant of the nervous system, though capable of being influenced by it. To what part of the nervous system the function of sensation is distinctly referable, it is difficult to decide. From a review of cases, in which the whole brain had been destroyed by disease, but in which those organs to which the nerves of sense are distributed still retained their powers, notwithstanding their having no connection with the spinal cord, Dr. Gordon infers, that the nerves alone are concerned in sensation.* As an additional confirmation of this opinion he moreover remarks, that numerous experimentalists have removed the brain in various quadrupeds, birds,

* Edinburgh Review for 1815, p. 452.

and reptiles, without loss of sensibility in any of their organs.

Having ascertained what are the functions of the nervous system, and the interruption they must necessarily experience from the errors observed in the circulation, we have at once a satisfactory clue to all its aberrations. These shall be exhibited in detail.

1. Disordered Intellect.

In the very simplest forms of typhus, even from the first attack, diminution of mental energy is a prominent symptom. That the disturbance of the mental processes arises from a disordered circulation and its effects on the brain, appears from a very obvious correspondence in the mental phenomena and the conditions of the vascular system. In the stage of oppression the mind is feeble, timid, and dejected, and all its operations are slow; in the acme of excitement there is a preternatural hurry of the thoughts, occasioning false associations and incorrect conclusions, reverie and delirium. But when those sympathies are intensely excited which so peculiarly characterise the ner-

vous system, or when those slighter organic determinations of blood, under which it suffers from the first moment of attack, become converted into more serious congestions, we have then every variety of intellectual disorder. The reader will recal to mind the affecting description of these calamitous forms of the disease in the history of the Bridlington Epidemic. The case of Mr. Kingston (1,) so fearfully pregnant with extremes, is highly curious and interesting, as exhibiting the most opposite and ever varying conditions of the nervous system, produced by an identical cause, as extreme despondency and a hurry and elevation of thought almost inconceivable, incessant vigilance and profound sleep, and the prostration of muscular strength in syncope dependant on congestion and its excitement during the maniacal paroxysm. "The vital properties, constantly variable in their intensity, often pass with the greatest rapidity from the lowest to the highest degree of energy, are successively exalted and weakened in the different organs, and assume, under the influence of the slightest causes, a thousand

different modifications. Compare the muscular energy of the same individual, when fainting, with that which he can display in a fit of rage or in a paroxysm of mania."* Insomnium, harassing dreams, inattention to external impressions or inaccurate perception of them, complete stupor, delirium mite et ferox, complete the circle of intellectual disturbances. Of those vascular changes going on within the cranium, and producing the various aberrations of mind, the countenance, which is its transcript, indicates to the experienced eye the extent and intensity. Hence the emphatic remark of Dr. Welsh, in reference to the earliest symptoms—"The whole countenance exhibited evident marks of the oppression that was going on within."† And still more pointedly M. Larrey has laid the utmost stress on this criterion of the inward mischief, in his portraiture of the Epidemic Disease of Brün, in the following remarkable observation:—"The features of the

* Lawrence's Introductory Lectures.

† Welsh on Blood-letting in Fever, p. 17.

countenance became decomposed in an astonishing manner, and discovered to the least practised eye the change of the organic functions. Every time I beheld this sign in the first period, I foresaw the fatal termination of the disease."*

2. Disorder of the Sensitive Functions.

From the apparent independance of these functions on the central medullary mass, we are led to look for their disturbance to a morbid condition of the nerves themselves, either at their origin or during their course and distribution. Morbid neurology has scarcely yet been cultivated sufficiently to enable us to arrive at satisfactory conclusions on this point in the pathology of fever. The analogy of every other part of the nervous system suffering a violation of function chiefly from certain changes in the vascular parts of its structure, would lead us to ascribe the deviations in question to a similar condition of the vessels entering into the texture

* M. Larrey's Mem. of Mil. Surg. Trans. by Waller. Part I. p. 180.

and organization of the nerves. Fortunately, in my anxiety for facts to test the truth of this opinion, the extensive researches of Dr. Beddoes into the morbid anatomy of fever enable me to adduce a most apposite illustration. "How much we may expect from closer examination of the nerves in fatal cases of fever, these facts," says he, "may also serve to shew: When a nerve, in its ordinary state, is put into nitrous acid at the specific gravity of 1127, it assumes an agreeable light yellow hue. Dr. Reil, (de Structurâ Nervorum, 1796, p. 20,) on treating in this manner portions of nerve taken from a person that died of typhus with violent nervous symptoms, observed that they became of a dirty dark colour (sordido fuscus,) for the blood had penetrated to the inmost medulla, the vessels having been so dilated as to allow of great accumulation of blood in the coats of the nerves."* That this explanation of morbid causes is applicable to the different organs of sense, though requiring demonstration by the scalpel, is in the

* Beddoes on Fever, p. 78.

highest degree probable from analogy. In the eye, for example, we have frequently amaurotic indistinctness of vision or excessive irritability of the retina, obviously depending on local plenitude and excitement; and the removal of deafness or tinnitus aurium by local evacuants is equally conclusive as to the cause of such disturbances. The pathology of sensation in general is the same. "That general feeling of soreness, of which patients almost universally complain, is in truth principally owing to the morbid state of the parts themselves, probably *to over activity of their blood-vessels,* as I have frequently seen this feeling remarkably relieved by withdrawing a quantity of blood, often during the time it was flowing from the vein."*

3. Disordered Secretion.

We have assigned, in our physiological observations, the chief residence of the nervous power, that power on which the vital processes principally depend, to the spinal marrow. That the function of secretion is not carried on by

* Welsh on Blood-letting in Fever, p. 28.

any apparatus of vessels, independantly of the nervous power, is decided by experiment. We are thus naturally led to ascribe the suspension of the various secretions to the interception of nervous influence, occasioned, as in the other disorders of the nervous system, by sanguineous determinations in ever varying degrees of intensity to the spinal marrow more especially. We may admit indeed, that something is assignable to the vascular derangements of the secerning organs themselves.* It would be reasoning in a circle to infer the existence of vascular disorder in the spinal marrow from a suspension of the secretions; but the fact may be inferred with sufficient clearness, from the pain felt in the course of the spine during life, and from the appearances of disease exhibited in the different parts of its structure after death. The impediments to dissection in this part have, in conjunction with our ignorance of its vast

* "There is a point, not only of excitement but of simple congestion, at which these organs, whether glandular or membranous, withhold their respective secretions."—*Percival on Fever.*

physiological importance, led to limited and erroneous views of the nature of fever, fixing our attention exclusively on other and less important organs. More recent anatomical researches have corrected, by extending, our views. Dr. Robert Wight, in particular,* describes a variety of morbid appearances within the spinal canal, the product of vascular derangements, as "invariable results in fevers." He even asserts, that "whatever is the condition of the head, unless the spinal marrow and its appurtenances have been involved, fever never occurs." In the researches into the morbid anatomy of fever, conducted by Mr. James Sym, House Surgeon to the Glasgow Royal Infirmary, we have additional confirmation of the same facts, with this difference, that while Mr. Wight asserts their uniform occurrence, Mr. Sym admits that "we are occasionally disappointed in our expectations."† The supposition, therefore, ori-

* Dr. Wight on the Nature of Fever, in Med. Chir. Journal and Review, Vol. V. p. 316.

† Mr. Sym on Fever, in Edin. Med. and Surg. Journal, No. LV. p. 337. 1818.

ginating in clinical inquiries, post-obituary data fully confirm, that vascular irregularities in the spinal marrow occasion a corresponding interruption of its functions. It is still further illustrated by the results of other injuries inflicted on this important organ. For example, Dr. Philip has shewn, by direct experiment, that to interrupt the circulation in any particular part of the spinal marrow, impairs or destroys life in all the parts which receive nerves from it, according to the extent of the deprivation.* The terrible disorder likewise of the secreting organs, with cold extremities and other mortal signs, as in case (42,) when the central medullary mass has attained the acme of organic lesion, is not exceeded by the consequences of piercing the brain and spinal marrow of cold-blooded animals their whole length. The secreting power of the lungs is as much deranged by destroying a considerable part of the spinal marrow, as by dividing the eighth pair of nerves.†

* Dr. W. Philip on the Vital Functions, p. 23.

† Ibid—Exper. 44, 45, 49, 58, 59, 60.

In accounting therefore for the disturbances of respiration, we must advert to the morbid changes induced as well in the medulla spinalis as in the medulla oblongata. Respiration has this connection with the sensorium, that being a voluntary process, irrecoverable injuries of the cerebrum annihilate this important function.

4. Disorder of the Calorific Function.

Experimental physiology authorises us to connect this function also with the spinal marrow, the destruction of any considerable part of which lessens the temperature of the animal.* Other parts of the nervous system participate also in its execution.† Omne majus in se continet minus. Wherefore morbid states of the nervous system, falling far short of the extinction of life, will be followed by a proportionate privation of the calorific function; and we have already shewn the injury inflicted on

* Dr. W. Philip on the Vital Functions—Exp. 58, 59, 60.

† "We have evidence," says Mr. Brodie, "that when the brain ceases to exercise its functions, although those of the heart and lungs continue to be performed, the animal loses the powers of generating heat."

this system by those vascular disturbances which present themselves in the first stage of fever. We have likewise pointed out the continuance of a disordered circulation during the period of excitement, with its frequent though accidental deviations into states of inflammation or extreme venous congestion, to the production even of a total eclipse of nervous influence. The subject will admit of further illustration, by minutely tracing the morbid alterations to which the calorific function is thus subjected. And first, of the cold stage. Extreme degrees of cold might be supposed to portend danger, by indicating a serious oppression of the nervous system. Such, experience shews to be the case, when at least the cold is of long duration, and the other vital energies sustain a similar degree of oppression.* It must not be concealed, however, that the indications in fever do not

* Even in intermittents "the attack is sometimes attended with the most alarming symptoms, such as syncope, apoplexy, a great load on the chest, with threatening suffocation, epileptic paroxysms, or violent spasms, or a coldness, which increases till the patient sinks into torpor, soon followed by death."—*Parr's Med. Dict. Art. Intermittents.*

always correspond with the actual danger; the best observers having remarked, that the worst forms of typhus fever often differ in no respects from the milder species in their early symptoms:* and though the cold stage may be severe, yet if it be of short continuance, and unaccompanied with other signs of extreme oppression, much danger will not attach to our prognosis.† Of the stage of excitement, Dr. Percival has asserted, with great truth, that "a high temperature is by no means an adverse sign, but is rather an indication of activity in the vital powers."‡ Greater danger attaches to those cases, in which the temperature during excitement scarcely exceeds the natural standard, and still more certainly when it sinks below it. Some explanation may be needed to render the truth of these assertions more obvious. The

* "The greater severity of this form of fever was not manifest, from its early symptoms."—*Bateman on Fever*, p. 52.

† "In such cases more particularly a sudden and critical termination by sweating may be expected."—*Clutterbuck on Contagious Fever*, p. 20.

‡ Percival, p. 77.

causes so frequently adverted to as producing the cold stage of fever, act (to illustrate vital by mechanical ideas) as a weight on the elastic springs of life, which are capable of more or less rebound in proportion to the pressure they sustain. The degree of reaction therefore in the heart and arteries, and in the brain and nerves, will indicate the degree of oppression on the vital forces, allowing of course for differences in constitutional strength. It must be remembered, moreover, that in the stage of excitement every process instituted by nature to regulate the temperature and carry off superfluous heat is suspended; every secreting tissue and organ is at a stand. Mr. Brodie admits the influence of this suspension of the secretions in the production of febrile heat. He admits also, after demonstrating the agency of the nervous system in producing heat, that the chemical changes of the blood in the lungs may possibly have a share in its production. Now in the worst forms of fever it is sufficiently probable, that both these sources of animal heat are partially closed, but especially that the nervous system is incapaci-

tated for the performance of its functions. Were it otherwise, indeed, and as it really happens in typhus mitior, we might expect a complete febrile explosion, when all the natural outlets of heat, the secretions, are closed; and when respiration, though scanty and embarrassed, becomes freer, and possesses a frequency to at least double the amount of inspirations performed in health; and when the circulating organs propel the blood with augmented velocity to the brain and spinal marrow. The want of increased temperature under such circumstances, and so favourable to its accumulation, is a lamentable proof of an almost total eclipse of the great source of heat in the animal economy, the nervous system. Dissection confirms the conclusions dictated by a physiological review of symptoms, affording a rational explanation of the facts recorded by Dr. Cheyne, "that in forty patients, in whom the temperature exceeded 104°, there was only one death; and that in the majority of fatal cases in two hundred and fifty examples the temperature did not exceed 100°. It was not uncommon," he

adds, "to find the thermometer gradually rising from 98° or 99° to 102° or 103°, or even higher, while the severity of the disease was abating; and on the other hand we frequently observed the temperature declining, while the patient was getting worse."

Lastly, the Irregularities of Muscular Motion demand some explanation.

The circulating organs seem more independant of the nervous system than the locomotive powers.* The blood is the stimulus to the former; to produce activity in the latter, volition emanates from the sensorium, in consequence of which the nervous power communicates the appropriate stimulus to the muscles. The value of the comparative independance of the circulation is shewn in no case more markedly than in fever; and it is a merciful provision on the part of our Creator, that, while every vital process is interrupted, life should be maintained, through the medium of

* In cold-blooded animals, the most destructive injuries may be inflicted on the brain and spinal marrow, with no other effect than a temporary suspension of the circulation.

an independant vitality in the circulating organs, until we have accomplished the removal of the oppressive cause.

The voluntary muscles, from their peculiar relation to the nervous system, seem far more completely subjected to its agency, and consequently are much more obviously affected by its diseases. More or less prostration of strength is characteristic of typhus fever, owing doubtless to the morbid condition of the sensorium and spinal marrow; for when the reciprocal influences derived from these sources are intercepted, neither the power to will or execute remains. This explanation of the depression of strength in fever will apply to the other irregular motions of the muscular system: and if the theory advocated in these pages be entitled to the confidence which attaches to truth, we have then approached the desideratum hinted at by Dr. Welsh:—"There are no facts known respecting the moving powers, that enable us to explain the exhaustion they suffer in various diseases; and consequently till such are disco-

vered, we must remain ignorant of the causes by which they are so much diminished in particular instances of disease as individual cases of fever." (p. 124.)

APPENDIX.

APPENDIX.

N°. I.

Recollections of the Epidemic Fever which prevailed in Beverley and the Neighbourhood in the Years 1818 *and* 1819.

BY MR. THOMAS SANDWITH, SURGEON.

DEAR BROTHER,

As I made no notes of my fever cases during the late Epidemic, the narrative I shall give you must be less particular than I could wish. The impressions however they made on my mind being yet vivid, it will be true in the principal features; and if it but faintly echo the great truths contained in your report, I am content. The Epidemic did not find me altogether unprepared. My mind was so thoroughly imbued with the sound principles originally inculcated by Sydenham, and latterly enforced by observers so able and trustworthy as Rush, Robert Jackson, Beddoes, Clutterbuck, and Hamilton, as to render me proof against the theories of Brown and Cullen, and the ingenious trifling of Dr. Currie. Experience only was wanted to make me a match for the proteus forms of fever. I was, however, determined

never to prescribe for the name of a disease, but combat the symptoms, whatever they might be—a salutary rule of conduct I learned from Dr. Rush.

A case soon occurred to convince me of the insufficiency of general principles without experience. It was indeed a very formidable specimen of fever. The patient was a very fat man, in the prime of life, and had been ill of the fever nearly a fortnight. His skin was hot and moist; pulse quick and soft; tongue yellowish, face flushed, eyes red, with occasional delirium and head-ache. He breathed high and quick, but had no pain in the chest; his stools resembled tar, mixed with masses of coagulated blood, and his urine was dark. These were fearful odds against me. From a fallacious idea, that the lancet was applicable only in the first week of fever, I determined to trust to leeches and purging. The former were applied in relays of dozens to the temples; and a complete abatement of pain, heat, and delirium followed in two or three days. The effect of the purgatives too was happy. After an immense discharge of tar-like matter, and grumous blood, the stools became bilious. Every thing promised well: the tongue cleaned, the urine changed, and I anticipated a favourable crisis. At the end of the third week, however, instead of crisis, an universal trembling of the limbs and subsultus came on, and the patient died. The event of this case opened my eyes to the necessity of using the lancet, even in the advanced

stages of fever; an important addition to my knowledge. I had before encountered three cases, attended with severe head-ache, which yielded to leeches and purging; although one was followed by mania, of which the patient, a female, recovered, on the appearance of the catamenial discharge. I had also attended a patient in fever combined with pulmonary inflammation, who was cured by blood-letting and the antiphlogistic regimen. My practical information was still imperfect. I had learned that local inflammation, although a very frequent, might yet be considered an accidental, rather than a common, occurrence in fever; and that in ordinary cases emetics, free purging, and low diet, would be sufficient preventatives.* At the same time, I thought it soon enough to use the lancet, when pain and disordered function announced the attack of inflammation or congestion; a doctrine that is maintained in one of the latest works on fever.† Under these impressions I attended Mr. S.'s family. Mrs. S. was the first affected. The fever set in violently, in the summer (August 1818;) but the gastric system was the focus of disease, and the head throughout was but slightly disordered. The epigastrium was distended; the pulse quick; the bowels were irritable, and the stools slimy. A few leeches were applied

* "Only keep the sick cool, and they will recover."—*Beddoes on Fever*, p. 174.

† Armstrong on Typhus Fever.

to the head, but the cure was trusted to purgatives. Throughout the course of the disease they afforded decided relief. Her convalescence was slow; and I feel certain, that one free bleeding in the beginning would have materially shortened the duration of the disease. Three of their children were attacked in succession. In one of them, I saw the child in the first paroxysm; the skin very hot, and the pulse rapid, without any topical pain, or sign of organic mischief. This was a fair case for the cold affusion; and accordingly three buckets of cold water were successively poured upon the skin. The effect was only transitory, and the experiment was three times repeated during the night, without any obvious advantage. The fever continued three weeks. The other two children, who were treated with emetics and purgatives, recovered sooner. None of them exhibited decided marks of topical inflammation. A servant of the family, who was next attacked, evidently laboured under a brain affection, which was followed by pneumonia, and was cured by blood-letting. One of the prisoners in the House of Correction at the same time had the fever. This was a formidable case. The girl had great head-ache for two or three days, which was relieved by a free bleeding and purging. Afterwards intense pain in the loins and sacrum came on. Her cries were piercing. Another bleeding was used, and leeches were applied to the loins, but without relief. The pain

yielded to a large blister sprinkled with camphor. The fever lasted three weeks. The usual signs of crisis appeared; but, contrary to expectation, she died suddenly, probably from effusion in the spinal canal. About this time, I was called to a poor woman of Bishop Burton, who was in the third week of fever, and was covered with purple stigmata. The eyes were bloodshot, and there was occasional delirium; in short, there was evident inflammation of the brain. I abstracted twelve ounces of blood, which was sizy; but she became comatose the day after, and soon died. This patient, whose condition was wretched in the extreme from absolute neglect, was seen by Dr. Hull, who agreed with me that it was an utterly hopeless case, and of course dissuaded the further employment of the lancet.—The next family I attended was in Leconfield (Sept. 1818.) The first was a case of simple fever, in a young and married woman. There was great inward fever, distension of the epigastrium, and diarrhœa, which was maintained by gentle purging. A fortnight had elapsed, but she did well. Her husband was next affected with the usual symptoms of mild typhus. An emetic, leeches to the head, and free purging were used; and he appeared to recover. After the crisis, however, a febricula set in. His tongue became very white, his head ached, and he had a regular fever every night. Leeches and blisters failed to relieve the head, but one free bleeding from the arm effected it, and after-

wards his convalescence was rapid. His mother, an old woman of sixty, then had the fever (Oct. 3d.) It was of a putrid type from the first. Black tongue, the teeth and lips covered with a black sordes, deafness, subsultus tendinum, and mental apathy; the skin and lungs exhaling an abominable fætor; were its prominent symptoms. Gentle laxatives, with bark, wine, and sulphuric acid, were the remedies, and they were successful. Five more cases, treated with leeches and purging, and successful, completed my experience in 1818.

I had only two cases in January 1819. One of them I bled early, for any fears I might have entertained of the lancet were now over, and the case did well. The other was attended with pain in the head and epigastrium, with great prostration of strength, and was at an advanced period of the disease. This case I entrusted to leeches, purging and blistering. In February the epidemic fairly set in of a decidedly inflammatory character; affecting principally the head. It prevailed until July, when it yielded to the usual diseases of summer. It spread through many of the villages, but was especially prevalent in Bishop Burton, Lockington, Cherry Burton and Etton. Dalton and Lund were comparatively exempted. There were also many severe cases in the town. The first three I had to encounter were those of Mr. R. and Mr. F. of Lockington, and Mr. H. S. of Beverley; in all of whom the fever was

inflammatory, and in all the head was the suffering organ. Mr. R.'s was a case of unusual interest. He is, you know, a very robust hearty man, and about fifty years of age. When I saw him he had been ill five or six days. He had a white tongue, hot skin, red and scanty urine, quick pulse, and bloodshot eyes. He complained but little of his head, although it was evidently the focus of disease. His mind was in some degree alienated; he appeared to be absorbed in his own reflections, and treated all questions alike with a sardonic laugh. This state of mind continued throughout the disease. Three bleedings, each to twenty ounces, were used with the usual remedies, and at the end of the third week there was an imperfect crisis. After this, from some irregularities in diet, he had a relapse, which was attended with a severe pain in the occiput. I durst not bleed, but applied thirty leeches to the neck, and a blister. These relieved the pain entirely. Soon afterwards, genuine symptoms of colapse came on—a black tongue, putrid breath, subsultus tendinum, and fluttering unsteady pulse. The strength was, however, supported by bark, wine and jellies, given in moderate quantities, at proper intervals, and at the end of six weeks, the crisis was complete. It was beautiful, in this stage of the disorder, to witness the clear, and decided relief afforded by stimuli. One evening, from the culpable neglect of them during the day, on the part of his at-

tendant, he was almost in articulo mortis, but their immediate and steady use set all right again. In this case there was congestion rather than active inflammation of the brain; a form of the disease which is frequent in those of the better ranks of life, who are of full habits, and live freely. The type of Mr. F.'s fever was more decidedly inflammatory, but he is a different man, being slender and sanguine. The symptoms resembled those of Mr. R., with the addition of intense pain in the head, which yielded to three large bleedings. He also had a distinct relapse, from premature exposure to cold. Two bleedings restored him, as in the first attack. Mr. S.'s was a case a good deal like Mr. R.'s. It was treated early, and shews pointedly the powers of the lancet, when used in time. After two bleedings to twenty-five ounces, blood very sizy, the head was completely relieved, and the eyes were no longer bloodshot; but inflammation of the lungs supervened, which one more bleeding cured. The crisis was completed in less than a week! About this time I had to encounter a case which set in with coma. It was in a young woman. Fever followed the first bleeding, and the restoration of the sensorial powers; but another bleeding, with leeches, blistering, and purging, removed all disease. A case which occurred about this period is worthy of record, as illustrative of the power of the lancet when used early. The fever was clear, strong, and decided; and the patient a stout young woman.

One free bleeding to syncope, followed by an emetic and purge, cured her at once. A whole host of cases I shall pass over. They were clearly marked, but in almost every case the lancet was used early, once or twice; and when the head was thereby relieved, moderate purging and the cooling regimen cured them. It is indeed worthy of remark, that the majority of cases I attended being bled early, presented in their progress nothing peculiar but their subsequent mildness. This speaks volumes in favour of early blood-letting. In many of these cases the stomach was affected with sickness and vomiting; but it was not a dangerous combination.

In March and April the fever ran through Mr. B.'s family, and the experience it afforded is worthy of notice. Six young people had the fever in such quick succession, that they were all laid up together. The first was bled early, and did well. After crisis, however, recovery was retarded by inflammation of the feet, which yielded to leeches. The second was, apparently, so mild a case, that I intended to trust the cure to an emetic and purging; but though the patient did not complain of head-ache or pain in the chest, yet emaciation increased, with an increasing fever, white tongue, wiry pulse, and skin absolutely dry. This induced me to bleed. The skin relaxed immediately; the pulse, before sharp and quick, became slow and soft; and crisis soon succeeded. All the others were bled, except Miss H., who had the fever

so slightly as to be able to wait upon her sisters. She took an emetic and gentle purges, and at the end of a fortnight complained of pain in the neck. Leeches and a blister gave perfect ease, and crisis appeared. She never, however, recovered her strength and flesh, but, becoming more and more emaciated, a fortnight after crisis became maniacal, and died soon. One circumstance should not be omitted. I have reason to believe that rum was given in their tea to the fever patients in this family. Bark was administered in this case after crisis, certainly injudiciously. Whenever a patient does not recover his strength and flesh after crisis, it is a sure sign of organic disease, and not of mere debility. The Leckonfield case illustrates this opinion; and indeed Dr. Fort Symmons points out the propriety of a slender diet after crisis, in the narrative of some fever cases, where, as in this, there was a sudden effusion upon the brain, and death. This case is also instructive in another point of view. Had this patient been bled, and that early, she would in all probability have recovered. We should never trust to mild measures in typhus, when the disease sets in mildly. So certain is the occurrence of inflammation in the course of typhus, if not prevented by early bleeding, that the cases in which it does not appear are but exceptions. The objections against blood-letting seldom apply to its early use; and if the fever is mild, it will make it milder. One of the

cases in Mr. B.'s family, and it shews the tendency of typhus to generate inflammation, was followed by an abscess in the thigh, near the hip-joint. An incision was made, as soon as the fluctuation was perceptible, through the integuments, fascia, and muscles of the back of the thigh, and the matter liberated. This young man some years before had a similar abscess in the other thigh, which contained four quarts of pus.

The fever ran its career, and maintained the same type throughout the summer, only the symptoms were not so decidedly phlegmonous. In June I had the misfortune to lose a case. The patient was a young woman about nineteen years of age, of a florid complexion. When I saw her she had been ill six days, *i. e.* had fever, head-ache, bloodshot eyes, and occasionally nightly delirium. I bled her twice to fourteen ounces, but in spite of these measures, blisters and purgatives, the pain of the head and fever increased. Two days afterwards, therefore, I bled again. After this, for a few days, the tongue cleaned, and I anticipated a favourable crisis; but instead of crisis, subsultus tendinum came on, with brown tongue. An inability to swallow supervened, and she died. The issue of the case caused me a sensible mortification, as, until the appearance of subsultus, I felt confident of success. Every thing appeared favourable, and my faith in the lancet was unbounded. The next I lost was, I think, from the injudicious use of the great remedy in

the close of the disease. The hurry of the breathing which sometimes precedes crisis, and which Cheyne has accurately described, and denominated the "exacerbatio critica,"* my assistant considered to be pneumonia. He bled the girl, who was a pauper, to sixteen ounces, and though immediate ease followed, yet death succeeded in a few days.

The autumnal continuation of the epidemic is interesting, as illustrative of the experience of Cheyne, that the gastric system is the centre of the disease. This was forcibly exemplified in Mr. S.'s family. The fever in Mrs. S. began with head-ache and constant vomiting. Two bleedings cured the head-ache. The bowels were freely evacuated, and the sickness yielded to magnesia in peppermint water; in short all was well until the twenty-first day, when inflammation of the colon came on. Leeches, purges, and a blister removed it, and she recovered. Nearly a week had elapsed before I saw her. In the son's case, who was seen early, two bleedings relieved the head, and he was well in a few days. Mr. S. had no affection of the head, but after a slight fever for three or four days, bronchial inflammation came on, which yielded to bleeding. His convalescence was slow, and about a month after crisis he had an attack of hepatitis. Two months afterwards it recurred, and he was restored by free bleeding and mercury.

* Dublin Hospital Reports, Vol. II. p. 43.

Upon the whole, the modern treatment of fever is about as successful as that of inflammation. The disease is cured in the majority of cases. Mine were in number 103, and of these six died. In three of them the result was probably owing to the advanced period of the fever, when recourse was had to the resources of art. One died from the neglect of the grand remedy, another from its injudicious use, and the death of the remaining one may be ascribed to a cause which applies as well to inflammation as fever, effusion within the bony cavities on the subsidence of inflammation.

I cannot conclude these recollections better than in the words of an eminent and honest physician, who flourished a century ago. Discoursing with Dr. White,* whose papers he had perused, on a larger phlebotomy in fevers, "I have," says he, "been long ago convinced that a considerable larger phlebotomy than in practice would be much better many times, than whole gallipots full of medicines for the patient."—N. B. You will find the practices of the moderns in fever anticipated by the sagacity and courage of Dr. White. If you have not read his book, read it.

"Vixere fortes ante Agamemnona
"Multi."

I remain, dear Brother,
Your's, &c. &c.

Beverley, April 9, 1820. THOMAS SANDWITH.

* White de Rectâ Sanguinis Missione, 1712.

N°. II.

Account of the Pickering Epidemic.

BY MR. DUNN, SURGEON.

Dear Sir,

To your first question, whether the Epidemic which prevailed at Pickering in 1818 and the beginning of 1819 was mild or not, I should say that it depended much upon the treatment. Where bleeding was used on the first three days, I knew of no fatal case, and even when resorted to in the most hopeless cases, I mean in those where the febrile action had become rooted in the system, I always found it to tranquillize and cool the patient above all other measures. In the practice of another person, two died in one family; and a year before, he lost no less than five in a very short space of time; and I do not find that I lost one when the same epidemic prevailed. The cold affusion was at this time freely used by him; whether with discretion or as prescribed by Currie, I could not of course judge, but under whatever circumstances it certainly was the least successful. I almost lost my confidence in leeches, although at Scarbro I generally find them sufficient in similar cases, but here the pulse is never so strong nor the arterial

excitement so fully developed as in the country. In the beginning of fever I found them of no use, as they only protracted the recovery, seeming to answer a mere temporary end, but not sufficiently sudden or impressive to subdue the character of the fever; and even in local affections I do not find they answer so well as general bleeding, a strong instance of which I lately observed in an opthalmic case, and many others I have noticed in slight inflammatory affections of the lungs: Indeed, sometimes they have seemed dangerous; about a month back I ordered fifteen or twenty to be applied to a patient with the fever, who had been previously bled twice; the hœmorrhage continued all night, and the woman the next morning was so exhausted that I began to despair of rousing the vis vitæ. She had not power to void her urine, which I have found a fatal sign, as in two, and the only two that I saw die of the epidemic, this symptom was the forerunner of dissolution. By removing it occasionally, and by the assistance of cool air, the muriatic acid, light tonics and food of easy digestion, she is now however fully restored. In one of the fatal cases now named the patient's death was laid by his friends to the continued draining hœmorrhage from the leech-bites. With the lancet our practice is steady, can be measured with philosophical nicety, and regulated completely by effect. Leeches are troublesome, uncertain and fatiguing. But withal, the world will

not bend to the free use of the lancet, less apprehension is generally entertained from leeches; and we are obliged to resort to them because we cannot use what we ought.

The situation where the epidemic most prevailed was different in the two years. In 1818 five or six cases occurred in one street, four of which were the fatal ones already noticed. This street was by no means in a confined part of the town, was wide, refreshed by a stream at the bottom, but rather lower than the rest of the town. The last epidemic prevailed almost exclusively in the moor towns which are all built in an elevated situation and open to every wind that blows. In some families the disorder was insulated in one individual, in others it extended to four or five; a nurse exposed constantly to the atmosphere of the patient and frequently employed in washing the linen perhaps escaped it, whereas a mother with the same fatigue would not escape. An intimate friend has taken it on calling to see the sick person, while many other persons have gone in and out with impunity.

With regard to your question of particular organs being affected, I must answer, that here the greatest variety prevailed. The lungs were often attacked in the later periods, but occasionally even in the former of the disease; from thence the pain and affliction would shift to the head, the bowels, the back, the limbs, and vice versa. One day I had to bleed the patient for

tenderness of the abdomen, the next for violent pain in the head, and in the third perhaps or fifth for the uneasiness of the limbs or back.

In urgent cases I do not think much even of the lancet unless it is used boldly, whenever there is acute and continued pain I bleed; when the pulse is oppressed it will rise under its influence, but I could gather less from the pulse than I expected. Pain and restlessness were my principal guides. Emetics, purgatives, and blisters were all conjoined according to circumstances, as well as the application of cold cloths to the head. I entertained no opinion of what are usually termed sudorifics, I never could ensure perspiration from the skin but by bleeding carried to deliquium. An emetic would sometimes produce it, but nauseating medicines only added to the distress and restlessness already intolerable. I preferred soothing the stomach with the simple effervescing mixture. I never found opiates procure sleep, except after a severe purging. When the purgative medicines had acted too powerfully, a dose of opium at night was then prescribed with good effect. Children were amazingly relieved from acute suffering by the lancet and calomel, I particularly allude to cases of high excitement, where the pain is distressing, the skin dry, and the temperature much above the natural standard. I once gave twenty grains of calomel to a boy divided in three doses before I could procure stools. The boy had been given up by

his former attendant. When I arrived he was insensible, labouring under continued stupor; and seemed in a hopeless condition; as soon as the calomel operated he began to recover. The bowels in children were generally torpid and in adults I seldom prescribed less than ten grains of calomel and even a larger dose had sometimes no effect. Whenever recovery has been retarded it has been from the bowels or lungs being impaired by the disease, but these got well under careful treatment, particularly a cautious return to a better diet. I have seen many relapses from too much desire to restore the lost strength prematurely.—I never prescribed the bark as a tonic; in the febrile state I preferred the muriatic acid, and in the convalescent stages when the lungs had been affected I used the aqueous extract of myrrh.

Since my residence in Scarbro, I have not found it necessary to adopt the same bold measures. A single bleeding at the commencement with a cathartic and a suitable regimen were generally sufficient; or the application of leeches with a blister when the pulse was softer mostly answered every purpose. I have also observed the inhabitants of this place to be more easily brought to a state of perspiration than the hardy labourers of the country. The confined nature of a mechanical life, the later hours, the want of exercise in the air will sufficiently account for this; for amongst the sailors unless vigorous measures are used at the beginning, the

disease will be protracted for a much longer time. But I must say we are happily much more exempt from severe febrile affections as far as my short experience has gone than in the neighbourhood of my former sphere of practice.

Believe me, Sir,

Your's sincerely,

JOHN DUNN.

Scarbro, March 23rd, 1820.

N°. III.

Account of the Newcastle Epidemic.

BY MR. HARDCASTLE, SURGEON.

Dear Sir,

Accept my best endeavours to answer your inquiries. I offer them with pleasure, only regretting they should be so incomplete for want of that constant and unceasing observation highly essential to every medical practitioner, but not possessed in the same degree by all. With regard to the character of the late Epidemic, speaking in general terms, its symptoms were mild, and mortality consequently inconsiderable. It prevailed (as you will see by referring to Dr. Mac Whirter's Report, published in the Edinburgh Medical and Surgical Journal) very extensively. From the accounts I can collect, it would appear Newcastle has suffered more than any other town within the space of fifteen miles, as Shields, Durham, Sunderland, &c. Its symptoms generally seemed to agree with Dr. Cullen's definition of 'synocha,' as far as definition in physic can be trusted to. Cases approaching the character of 'typhus gravior' were spoken of, but I saw none. And in referring to my own practice, I almost invariably found the fever accompanied with more or less of inflammatory action in the brain or

chest; in some few a tenderness in the region of the liver; affections of an inflammatory nature in the viscera of the abdomen (the liver excepted) were but rare at the onset of the complaint, though in two or three cases, that ran a relentless course of twenty days and upwards, uneasiness and tension did supervene, which however soon yielded to remedies. In one case there was considerable inflammation of the stomach, having for its exciting cause 'breeding sickness.' This patient, though a *spare delicate woman,* was bled very freely with decided benefit. Another patient discharged a considerable quantity of blood per anum, without any pain in the bowels. I do not find that children have suffered in the same proportion as adults; but my fatal cases (two in number) were children. I attribute my want of success to being called late in the disease.

With regard to treatment, I can assure you my late experience has given me a strong bias to the early and free use of the lancet; and in my opinion it is one of the most powerful agents we possess for lessening febrile action. At the same time I must acknowledge I have been taught not to place implicit confidence in it, but, as occasion requires, make use of saline cathartics, febrifuges, tepid affusion, blisters, &c.

Your's respectfully,

WILLIAM HARDCASTLE.

Newcastle, June, 1819.

TABLES

OF

INDIVIDUAL CASES.

TABLES OF INDIVIDUAL CASES.

No.	Sex and Age.	Rank in Life, and Place.	Form of Fever.	Date of Seizure.	Date of first Visit.	Predominant Symptoms.	Organ most affected.	Ordinary Treatment.	Date and Mode of Bleeding.	Date of evident decline.	Date of convalescence.	Numb. of Days sick.	Probable cause.	General Remarks.
1	Male, aged 27.	Surgeon, Bridlington	Acute inflammatory typhus.	1818. Jan. 11.	1818. Jan. 16.	Head-ache at first, sleeplessness, fit of syncope or epilepsy, maniacal delirium, heat 102°, pulse 120°.	Brain chiefly, lungs and liver slightly inflamed.	Purgatives, alteratives, digitalis, and salines — blisters to the nucha and ears—head shaved and tepid washings—mild tonics, inf. aurant. &c.	Jan. 21. V.S.J. ad un. 12 A.M. ad un. 10 P.M.—Jan. 14. Hir. 16 ad temp.—Jan. 20. Hir. 30 ad temp. A.M.; hir. 12 ad temp. P.M. —Jan. 28. hir. 12 ad temp. —Feb. 1. hir. 12 ad hypoc. dext.	1818. Jan. 26.	1818. Feb. 3.	23	contagion.	For more minute details, vide p. 41. Dr. Simpson was in consultation. Crisis by long continued sleep, profuse perspiration, and expectoration.
2	Female, aged 32.	Labourer's wife, Bridlington	Sub-acute inflammatory typhus.	June 11.	June 13.	Pneumonic symptoms at first, cerebral irritation, with increasing delirium afterwards; pulse high.	Lungs & brain inflamed.	Purgatives and effervescing salines—blister to the nucha—cinchona as a tonic.	June 13. V.S.B. ad un. 12. —June 28. V.S.J. ad un. 6. —June 28 Hir. 12 ad tempora.	July 2.	July 7.	26		This was properly a case of Mr. Kingston's. He had recourse to the first bleeding from an idea that it was a case of pneumonia. I saw her when typhus was unequivocal, and advised V.S.J. for existing delirium.
3	Female, aged 21.	Maid Servant.	Acute inflammatory typhus.	July 5.	July 5.	Rending head-ache, chills, & flushings; incoherence the very first day; tongue dry, and brown in the centre.	Brain inflamed.	Purgatives and effervescing salines.	July 5. V.S.B. ad un. 12.	July 6.	July 10.	5		This too was Mr. Kingston's patient. I was consulted. He proposed immediate V.S. to which I agreed with some reluctance.
4	Female, aged 3.	Inn-keeper's daughter.	Simple typhus.	July 12.	July 12.	A smart fever.	Disordered bowels.	Antimonial emetics, purgatives, and salines—infus. cinchon.			July 30.	18		
5	Female, aged 6.	Inn-keeper's daughter.	Simple typhus.	July 15.	July 16.	Acute fever.		Antimonial emetics & purgatives—bark with digitalis.	July 17. V.S.B. ad un. 4.		July 21.	6	contagion	
6	Female, aged 12.	Shoe-maker's daughter.	Sub-acute inflammatory typhus.	July 8.	July 19.	Acute fever, lethargy on the eleventh day, bordering on coma.	Brain oppressed--bowels much disordered.	Purgatives and simple salines—blister ad nucham—cordials and bark.	July 19. V.S.J. very little blood abstracted.		Aug. 12.	34		Bark given before I was called in. I too commenced too soon with cordials—hence a slow recovery.
7	Female, aged 16.	Shoe-maker's daughter.	Simple typhus.	July 19.	July 20.	The usual signs of a mild attack.	The ankle greatly swollen.	Emetic—bark.			July 25.	5	contagion.	Example of fever abridged by an emetic. Crisis by the ankle swelling.
8	Female, aged 24.	Mantua-maker.	Simple typhus.	July 23.	July 23.	Irregular fever, sleeplessness, sweating, and diarrhœa.		Emetic and aperients—astringents & bitters.			Aug. 12.	20	contagion.	An anomalous case of fever, with severe yet irregular symptoms.
9	Male, aged 14.	Shoe-maker's son.	Acute inflammatory typhus.	July 25.	July 28.	Head-ache, giddiness, delirium ending in mania, subsultus, skin hot and dry, pulse very high.	Brain inflamed.	Emetics, purgatives, antimonial salines—tonics with digitalis—opiates and cordials—blisters ad nucham.	July 28. V.S.B. ad un. 4. Aug. 6. V.S.B. ad un. 7.			13	contagion.	This case terminated in death.
10	Male, aged 9.	Inn-keeper's son.	Simple typhus.	Aug. 4.	Aug. 4.	Acute fever, slight cough, bowels long and obstinately irregular, great weakness and emaciation eventually.	Bowels disordered.	Antimonial emetic, antimonial salines, brisk cathartics, and tonics.			Sept. 11.	38	contagion.	

TABLES OF INDIVIDUAL CASES *continued.*

No.	Sex and Age.	Rank in Life and Place.	Form of Fever.	Date of Seizure.	Date of first Visit.	Predominant Symptoms.	Organ most affected.	Ordinary Treatment.	Date and Mode of Bleeding.	Date of evident decline.	Date of convalescence.	Numb. of Days sick.	Probable cause.	General Remarks.
11	Female, aged 23.	Maid-servant.	Simple typhus bordering on the inflammatory.	1818. Sept. 4.	1818. Sept. 4.	At first severe head-ache, mild delirium a few nights, irregular bowels, perspirations, pulse high.	Nervous system next to inflamed—bowels excessively deranged.	Purgatives and alteratives—effervescing salines—head shaved and tepid applications—sulphuric acid as a tonic.	Sept. 5. V.S.B. ad un. 14, hirud. 8 ad tempora.		1818. Early in October.	from 28 to 35.		Mr. Kingston's case. He bled from the persuasion of simple phrenitis. I attended afterwards in consultation. Purgatives were of singular advantage.
12	Female, aged 36.	A lady.	Simple typhus bordering on the inflammatory.	Sept. 9.	Sept. 12.	High fever, sensorial disturbance bordering on delirium, frequent pulmonic distress and panting, perspirations at the close, high arterial action.	Lungs oppressed.	Emetic, purgatives, & antimonials—cusparia, gentian, and sulph. acid as tonics.		1818. Sept. 20.	Oct. 1.	23		Strong tendency to organic pulmonary mischief, invariably restrained by purgatives. Perspiration checked by the sulph. acid.
13	Male, aged 16.	Farmer's man-servant.	Simple typhus.	Sept. 11.	Sept. 17.	Usual signs of a smart fever, with sleeplessness and nightly reverie.		Purgatives and antimonial salines—blister ad nuch.			Sept. 25.	about a fortnight.		
14	Male, aged 7.	Methodist preacher's son.	Simple typhus bordering on the inflammatory.	Sept. 20.	Sept. 21.	Phenomena of a smart fever, with pain at the sternum; high pulse.	Lungs slightly congested.	Antimonial emetic—purgatives and antimonials — blister to sternum—cinchona.	Sept. 25. Hir. 6 ad sternum.—Oct. 4. Hir. 6 ad sternum.		Oct. 13.	about three weeks.		Leeches decidedly mitigated pulmonic distress.
15	Female, aged 40.	A poor and distressed woman.	Congestive typhus.	Sept. 12.	Sept. 22.	Irregular fever and alienation of mind progressively advancing, sensorial irritation strongly marked, tongue dry and chapped, great prostration.	Congestion, with inflammation, in the brain & spinal marrow.	Purgatives, antimonials, and alteratives—blisters ad nucham and a seton there.	Sept. 22. Hir. 8 ad tempora.—Sept. 29. Hir. 12 ad tempora.—Oct. 1. Hir. 10 ad tempora.			21	spontaneous origin.	Terminated by death. The symptoms agreed with Dr. Armstrong's description of the milder forms of congestive typhus.
16	Female, aged 23.	Respectable butcher's daughter.	Sub-acute inflammatory typhus.	Sept. 26.	Sept. 28.	High fever, great depression of strength, tongue very foul, pain in the loins ultimately, pulse small and quick.	Throat highly inflamed.	Emetic, purgatives, and salines—cinchona with digitalis as a tonic.	Sep. 29. Hir. 12 ad gulam.—Oct. 5. Hir. 8 ad lumb.	Oct. 6.	Oct. 8.	12	contagion.	This case had relation to three others of a similar form of the disease.
17	Female, aged 63.	Respectable mariner's wife.	Acute inflammatory typhus.	Oct. 15.	Oct. 15.	Seized with rigors, heat, syncope twice or thrice, vomiting, head-ache, and mental aberration; tongue dry and brown in medio. Soon cough, pain in the side, and bloody expectoration; pulse 100, and tense.	Brain at first inflamed, afterwards the lungs.	Purgatives, antimonials, and alteratives—blisters to the nucha, side, and breast—inf. aurantii as a tonic.	Oct. 16. V.S.B. ad un. 8 et sync., hir. 11 ad temp.—Oct. 17. Hir. 12 ad temp. et V.S.B. ad un. 6 et sync.—Oct. 19. Hir. 8 ad latus.	Oct. 23.	Oct. 29.	14		An attempt to salivate with calomel induced dysenteric purging.
18	Male, aged 33.	Methodist preacher.	Acute inflammatory typhus.	Oct. 24.	Oct. 27.	Acute head-ache, unproductive perspirations, extreme depres. of strength and spirits, eyes red, delirious melancholy, pain in the epigastrium, peculiar unctuous appearance of skin, cough and catarrh, pulse from 100 to 120, irregular and variable in the two wrists.	Nervous system chiefly inflamed—lungs and liver slightly congested.	Purgatives, salines with digitalis—alteratives—blisters ad nuch. et post aures—decoct. lichenis as a tonic.	Oct. 28. Hir. 10 ad temp.—Nov. 1. A.T.S. ad un. 1 et hir. 7 ad temp.—Nov. 2. Hir. 12 post aures.—Nov. 3. V.S.B. ad un 24.—Nov. 4. V.S.B. ad un. 20.—Nov. 5. Hir. 12 ad temp.—Nov. 6. Hir. 20 ad temp. — Nov. 9. Hir. 10 ad temp.	Nov. 11.	Nov. 28.	35		Dr. Simpson was in consultation. The patient had been an invalid 3 years, with melancholy & other signs of cerebral disease. Crisis by sleep and perspiration. This patient infected the three following.

TABLES OF INDIVIDUAL CASES *continued.*

No.	Sex and Age.	Rank in Life and Place.	Form of Fever.	Date of Seizure.	Date of first Visit.	Predominant Symptoms.	Organ most affected.	Ordinary Treatment.	Date and Mode of Bleeding.	Date of evident decline.	Date of convalescence.	Numb. of Days sick.	Probable cause.	General Remarks.
19	Male, aged 4½.	Methodist preacher's son.	Simple typhus.	1818. Nov. 5.	1818. Nov. 7.	Considerable fever, headache, drooping — restless nights & slight delirium.		Purgatives, antimonials, and salines—Blister ad nucham.	Nov. 9. Hir. 10 ad temp.	1818. Nov. 12.	1818. Nov. 19.	14	contagion.	Crisis by sleep.
20	Male, aged 3.	Methodist preacher's son.	Simple typhus.	Nov. 7.	Nov. 8.	Symptoms not so severe as in the preceding case.		Antimonial emetic, purgatives & salines —cinchona.		Nov. 17.	Nov. 24.	17	contagion.	
21	Female, aged 24.	A lady.	Typhus in an irregular form.	Nov. 13.	Nov. 14.	Gastric irritation—feverish and restless nights—profuse perspiration.	Stomach much deranged.		Antispasmodics, effervescing salines, antimonials, & aperients—acid. sulph. dil. at the close.	Nov. 22.	Nov. 28.	15	contagion.	An anomalous case, in which the system seemed only partially under the influence of the poison.
22	Female, aged 9.	Baker's daughter.	Simple typhus.	Nov. 1.	Nov. 13.	Ordinary signs of the disease.	Hepatic system much deranged.	Aperients, alteratives, and cordials.			Nov. 30.	30	contagion.	In this case the disease was imported from Newcastle.
23	Male, aged 13.	Baker's son.	Sub-acute inflammatory typhus.	Nov. 11.	Nov. 14.	Acute head-ache, fever, and delirium — hot and dry skin.	Brain slightly inflamed.	Purgatives & salines —blister ad nuch.—cinchona.	Nov. 16. V.S.B. ad un. 6.	Nov. 20.	Nov. 28.	17	contagion.	
24	Male, aged 7.	Baker's son.	Sub-acute inflammatory typhus.	Nov. 22.	Nov. 23.	Acute fever—pain in the chest, cough, and irregular respiration—restlessness and delirium.	Lungs congested and inflamed--brain subsequently affected.	Emetic, purgatives, antimonial salines—mild opiates & blisters.	Nov. 27. Hir. 6 ad sternum.—Nov. 28. Hir. 6 ad sternum.			17	contagion.	Terminated in death. During the last 48 hours, no efforts to save him were permitted.
25	Female, aged 13.	Maid-servant.	Simple typhus bordering on the inflammatory.	Nov. 22.	Nov. 23.	Acute fever, pain and tenderness in the abdomen, restlessness and mild delirium.	Peritoneum threatened with inflammation.	Emetic, purgatives, antimonial salines—cinchona.	Nov. 26. Hir. 8 ad abdomen.	Nov. 30.	Dec. 10.	18	contagion.	
26	Female, aged 20.	Milliner.	Acute inflammatorytyphus in embryo.	Dec. 1.	Dec. 1.	Intense head-ache, sleeplessness, and great prostration—severe chills and heats, cheeks flushed, &c.	Brain going into inflammation.	Emetic & purgatives, simple salines—light bitters.	Dec. 2. V.S.B. ad hss. et hir. 12 ad temp.	Dec. 6.	Dec. 10.	10		Example of acute fever arrested by a single bleeding.
27	Female, aged 6.	Inn-keeper's daughter.	Simple typhus.	Dec. 1.	Dec. 2.	Ordinary signs of a smart fever—pain in abdomen.		Purgatives, antimonials, antimonial emetic—calumba.	Dec. 6. Hir. 8 ad abdom.	Dec. 9.	Dec. 14.	14		Second attack.
28	Female, aged 12.	A poor woman's daughter.	Sub-acute inflammatory typhus.	Nov. 18.	Dec. 2.	Signs of extreme sensorial and nervous irritation—much cough also—emaciation and the supine position.	Brain & abdomen subacutely inflamed, especially the former.	Cordials and opiates blisters successively to the abdomen, nucha, and sternum.		Dec. 16.	1819. Jan. 14.	57	contagion	Called in late—mal-practice previously. I too commenced with cordials prematurely.
29	Male, aged 40.	Inn-keeper.	Simple typhus.	Dec. 17.	Dec. 19.	Usual signs of the disease, together with catarrhal symptoms.	Bronchia slightly affected.	Purgatives & salines —antimonials.	Dec. 29. Hir. 12 ad sternum.	Dec. 30.	Jan. 1.	14	cold & contagion.	
30	Female, aged 40.	Baker's wife.	Anomalous.	Dec. 19.	Dec. 22.	Irreg. fever—great prostration—perspirations.		Purgatives.		Dec. 24.	1818 Dec. 28.	9	contagion.	
31	Male, aged 9.	Baker's son.	Simple typhus.	Dec. 15.	Dec. 22.	Phenomena of a smart fever with deafness and wasting.		Purgatives and antimonial salines—blisters ad nuch.		1819. Jan. 1.	1819. Jan. 5.	21	contagion.	
32	Female, aged 12.	Baker's daughter.	Simple typhus.	Dec. 15.	Dec. 22.	Phenomena of a smart fever.		Purgatives and antimonial salines.		Jan. 1.	Jan. 5.	21	contagion.	

TABLES OF INDIVIDUAL CASES *continued.*

No.	Sex and Age.	Rank in Life, and Place.	Form of Fever.	Date of Seizure.	Date of first Visit.	Predominant Symptoms.	Organ most affected.	Ordinary Treatment.	Date and Mode of Bleeding.	Date of evident decline.	Date of convalescence.	Numb. of Days sick.	Probable cause.	General Remarks.
33	Female, aged 22.	Milliner.	Acute inflammatory typhus.	1818. Dec. 20.	1818. Dec. 22.	Strong rigors and flushings—intense pain in the head, neck, and back—skin hot and perspiring—prostration and all the symptoms of a severe disease—pulse 120.	Brain oppressed.	Purgatives, antimonial salines, alteratives—blisters ad nucham et aures—light bitters & sulph. acid.	Dec. 22. V.S. B. ad un. 10. hir. 14 ad temp.—Dec. 24. V.S.J. ad un. 12.—Dec. 27. Hir. 12 ad temp.—Jan. 19. Hir. 10 ad temp.—Feb. 16. Hir. 8 ad temp.	1819. Jan. 5th first evid. decline—final dec. about the 21st Feb.	1819. Mar. 7.	77	contagion.	Probable crisis by the re-establishment of catam. Delirium disappeared after second V.S. Two relapses.
34	Male, aged 12.	Brother of the above.	Simple typhus.	Dec. 16.	Dec. 30.	Phenomena of a protracted fever.		Purgatives, salines, and tonics—antimonial salines.		Jan. 21.	Jan. 28.	43	contagion.	Spontaneous epistaxis twice.
35	Female, aged 35.	Housekeeper.	Acute inflammatory typhus.	Dec. 19.	Dec. 21.	Fever with pneumonia at first--afterwards the brain and nervous system in general much affected—prone to relapse.	Lungs & brain inflamed.	Purgatives, and the whole routine of antiphlogistic measures—repeated blisters.	Dec. 21. V.S. ad un. 12.—Dec. 22. Hir. 12 ad stern.—Dec. 25. V.S. ad un. 24.—Dec. 26. Hir. 12.—Dec. 28. V.S. ad un. 8. et hir. 20.—Dec. 29. V.S. ad un. 12.—Dec. 30. Hirudines 12.—Leeches 4 times in Jan.	Jan. 20.	Jan. 31.	43		
36	Male, aged 9.	A young gentleman.	Acute inflammatory typhus.	Dec. 30.	Dec. 31.	Phenomena of a mild fever at first, suddenly assuming the form of phrenitis—brown tongue and subsultus tend.	Brain inflamed.	Purgatives, antimon. salines, &c.—blisters and sinapisms—head shaved & tepid washings.	Jan. 7. Hir. 8 ad abdom.—Jan. 9. Hir. 15 ad tempora.—Jan. 10. Hir. 12. ad tempora.			17		Termination by death. A most insidious case, shewing too the inefficacy of leeches.
37	Male, aged 9½.	Labourer's son.	Simple typhus.	Dec. 29.	Dec. 31.	Acute fever—head-ache—delirium & emaciation.	Tenderness in the abdomen.	Purgatives & simple salines--blisters to the neck and ears.	Jan. 3. Hir. 8 ad abdom.	Jan. 15.	Jan. 25.	28		
38	Male, aged 6.	A young gentleman.	Sub-acute inflammatory typhus.	1819. Jan. 1.	1819. Jan. 2.	Acute fever and delirium—extr. irritation—pain referred to head, chest, and abdomen—writhing and moaning—cough, dyspnœa, and croup.	Chiefly the trachæa.	Purgatives and antimonials — anodynes after the 14th day—blisters, &c.	Jan. 3. Hir. 3 ad temp.—Jan. 4. Hir. 3 ad temp.—Jan. 8. Hir. 4 ad stern.			18	contagion.	Six leeches were ordered but three only applied, from parental timidity. Contrast the practice in this case with that pursued in Case 49, his brother. Termin. by death.
39	Male, aged 8.	Brother of the above.	Simple typhus.	Jan. 2.	Jan. 2.	Incipient signs of well-marked fever.		Emetic & purgatives.		Jan. 3.	Jan. 5.	4	contagion.	Example of fever abridged by an emetic and purgatives.
40	Male, aged 4½.	Another brother.	Simple typhus.	Jan. 2.	Jan. 2.	Usual symptoms.		Purgatives and antimonial salines.		Jan. 11.	Jan. 14.	13	contagion.	Crisis by diarrhœa.
41	Female, aged 28.	Respectable mariner's daughter.	Sub-acute inflammatory typhus.	Jan. 4.	Jan. 4.	Slight catarrhal symptoms at first, with fever—more distinct disease in the chest as the fever advanced.	Bronchia.	Emetics, purgatives, and antimonials—digitalis — blister ad sternum.	Jan. 9. Hir. 10 ad stern.—Jan. 11. V.S.B. ad un. 5 et syncopen.	Jan. 16.	Jan. 21.	17		
42	Male, aged 36.	In respectable life.	Acute inflammatory typhus.	Jan. 10.	Jan. 11.	Acute fever, head-ache, sensorial irritation--eventually sudden prostration, dreadful bilious vomitings, stupor, and collapse.	Brain inflamed, liver also probably and the bowels by metastasis.	Ordinary routine of antiphlogistic remedies—blister to the scalp, fomentations, sinapisms.	Jan. 11. V.S.J. ad un. 8.—Jan. 12. Hir. 12 ad temp.—Jan. 15. Hir. 12 ad temp.—Jan. 17. Hir. 7 ad temp. et 20 ad abdomen.			11	contagion.	Dr. Forge in consultation at the close. Termination in death.
43	Male, aged 8.	Son of the above.	Simple typhus.	Jan. 10.	Jan. 11.	Usual phenomena.		Purgatives and antimonials.	Jan. 11. Hir. 6 ad tempora.		Jan. 20.	10	contagion.	

No.	Sex and Age.	Rank in Life, and Place.	Form of Fever.	Date of Seizure.	Date of first Visit.	Predominant Symptoms.	Organ most affected.	Ordinary Treatment.	Date and Mode of Bleeding.	Date of evident decline.	Date of convalescence.	Numb. of Days sick.	Probable cause.	General Remarks.
44	Female, aged 13.	Sister of the above.	Simple typhus.	1819. Jan. 11.	1819. Jan. 12.	Usual phenomena.		Ordinary routine.	Jan. 16. Hir. 8 ad tempora.		1819. Feb. 3.	23	contagion.	
45	Male, aged 12.	Brother of the above.	Simple typhus.	Jan. 19.	Jan. 21.	Usual phenomena.		Ordinary routine.			Feb. 10.	22	contagion.	
46	Male, aged 36.	Innkeeper.	Sub-acute inflammatory typhus.	1818. Dec. 30.	Jan. 12.	Acute fever, with extreme pulmonic distress & nightly delirium—eventually purulent expectoration, night sweats, and great wasting—hæmoptysis.	Bronchia inflamed.	Purgatives, antimonials, & alteratives—anodynes after the third week—5 blisters to the sternum in succession.	Jan. 12. V.S.B. ad un. 9 et syncop.—Jan. 13. Hir. 12 ad sternum.—Hirud. subsequently.	Decline of fever Jan. 30. Decline of pseudophthisis Feb. 25.	March 7.	Sick of the fever 31 Whole period of illness 66		Dr. Forge was in consultation on the pseudophthisis. He recommended the tar vapour and plumb. superac. in small doses.
47	Male, aged 8.	Bookseller's son.	Simple typhus.	1819. Jan. 22.	Jan. 27.	Usual symptoms.		Usual treatment.	Jan. 28. Hir. 4 ad tempora.	Jan. 31.	Feb. 4.	13		
48	Female, aged 13½	Staymaker's niece.	Acute inflammatory typhus in embryo.	Feb. 3.	Feb. 9.	Acute fever with intense head-ache and every expression of high sensorial irritation—deafness, &c.—cough eventually.	Brain incipiently inflamed, lungs eventually congested.	Usual treatment at first—anodynes begun with on the 18th day, to allay the cough—head shaved and cold applications.	Feb. 9. V.S.B. ad un. 8.—Feb. 11. Hir. 3 ad temp. P.M. V.S.B. ad un. 4.	Feb. 18.	March 3.	28	contagion.	Crisis by sleep. Blood very sizy but not cupped. Twelve leeches ordered, only three applied. Early V.S. warded off delirium!
49	Male, aged 9.	A young gentleman.	Acute inflammatory typhus in embryo.	Feb. 9.	Feb. 11.	Acute fever with intense head-ache and every expression of high sensorial irritation.	Brain incipiently inflam. lungs slightly disturbed.	Usual treatm.—blisters to the nucha and stern.—head shaved & cold applications.	Feb. 11. V.S.B. et J. ad un. 4.—Feb. 12. V.S.J. ad un. 5.—Feb. 13. Hir. 6 ad tempora.	Feb. 22.	March 1.	21	contagion.	Crisis by sleep. Highly irritable habit. Early V.S. warded off delirium! Blood not sizy.
50	Female, aged 19.	Milliner.	Simple typhus bordering on the inflammatory.	Feb. 13.	Feb. 14.	Usual signs of acute fever, threatening the brain—epistaxis twice.	Slight determination to the head.	Usual treatment.	Feb. 14. V.S.J. ad un. 1½ et hir. 6. ad tempora.—Feb. 22. Hir. 12 ad temp.	Feb. 25.	March 7.	23	contagion.	
51	Male, aged 35.	Carter.	Inflammatory typhus in embryo.	Feb. 18.	Feb. 19.	Acute fever and all the signs of incipient phrenitis.	Brain much congested and incip. inflam.	Usual treatment.	Feb. 19. V.S.B. ad un. 13 et prope deliquium.	Feb. 20.	Feb. 22.	5		V.S. on the 2d day cut short the fever. Blood covered with a thin size.
52	Female, aged 26.	A poor woman.	Anomalous typhus.	March 4.	Mar. 10.	Head-ache, prostration, irregular fever—restless nights, and perspiration.		Usual treatment—blister ad nuch.	Mar. 10. V.S.B. ad un. 12.—March 11. Hir. 12 ad nucham.	Mar. 14.	Mar. 20.	17	contagion.	
53	Male, aged 30.	Labourer.	Anomalous.	March 1.	Mar. 13.	Irregular fever and great emaciation.		Usual treatment.			Mar. 21.	21	contagion.	Case of walking typhus.
54	Female, aged 25.	Servant.	Incipient sub-acute inflammatory typhus.	Mar. 15.	Mar. 17.	Great sensorial disturbance—great pulmonic distress, cough, and expectoration—profuse sweats.	Brain slightly, lungs chiefly inflamed.	Usual antiphlogistic treatment, with digitalis and blisters—acid. sulph. dil.	Mar. 18. Hir. 10 ad temp.—Mar. 22. V.S. ad un. 6.—Mar. 24. Hir. 8 ad stern.—Mar. 28. Hir. 6 ad stern.		April 5. After a relapse April 20.	The whole period 36		March 23d partus filiæ. Aggravation of fever with the flow of milk.
55	Male, aged 27.	Butler.	Congestive variety.	April 1.	April 2.	Severe head-ache — he reeled and fell—pain in the occiput and spine—pulse slow and depressed, tongue moist, delirium at first.	Brain chiefly.	Purgatives and calomel given after Dr. Armstrong's plan—blisters.	April 2. V.S. ad lib. 1, hir. 16 ad temp. P.M. V.S. ad un. 12 et sync.—Apr. 3. Hir. 16 in situ med. spin. et P.M. V.S. ad un. 8.—Apr. 4. Hir. 8 ad latus.	April 9.	April 14.	14		Crisis by salivation. Blood not sizy.
56	Male, aged 42.	Labourer.	Acute inflammatory typhus.	April 2.	April 4.	Incipient delirium, oppressed breathing, and all the signs of a very acute attack—cough, &c.	Brain & lungs.	Purgatives & salines—calomel to affect the gums—blisters, &c.	Apr. 4. V.S. A.M. ad un. 20. P.M. V.S. ad un. 16, hir. 10 ad temp.—Apr. 5. Hir. 10 ad latus.	April 11.	April 16.	14	cold.	Blood slightly buffy.

TABLES OF INDIVIDUAL CASES *concluded.*

No.	Sex and Age.	Rank in Life and Place.	Form of Fever.	Date of Seizure.	Date of first Visit.	Predominant Symptoms.	Organ most affected.	Ordinary Treatment.	Date and Mode of Bleeding.	Date of evident decline.	Date of convalescence.	Numb. of Days sick.	Probable cause.	General Remarks.
57	Male, aged 12½.	Labourer's son.	simple typyus bord. on the inflammatory	1819. April 1.	1819. April 5.	Acute fever, deafness, delirium, &c.—severe cough at last.	Brain threatened.	Usual treatment—blisters ad nucham et ad sternum.	April 5. V.S.B. ad un. 6 et syncopen.—April 10. Hir. 12 ad tempora.	1819 April 25.	1819. May 5.	35		Crisis by long sleep. Blood slightly buffy.
58	Female, aged 27.	Joiner's wife.	simple typhus bord. on the inflammatory.	June 7.	June 10.	Symptoms resemb. those in the preceding case, with gastric irritation.	Brain & lungs menaced.	Usual treatment—blisters, &c.	June 10. V.S.B. ad un. 12. June 11. Hir. 10 ad stern. June 18. Hir. 10 ad temp.	June 28.	July 5.	28	contagion.	Blood not sizy.
59	Female, aged 21.	Maid-servant.	simple typhus bord. on the inflammatory.	April 26.	April 27.	Symptoms like those above, excepting the pulmonary distress.	Brain threatened.	Usual treatment—blisters, &c.	Apr. 29. V.S.B. ad un. 12 et sync., hir. 12 ad temp.	May 10.	May 20.	24	contagion.	Blood not buffy.
60	Male, aged 40.	Pauper.	Simple typhus.	June 26.	July 10.	Usual symptoms.		Usual treatment.	July 10. V.S. ad un. 6.—July 13. Hir. 6 ad temp.	July 18.	July 28.	32	contagion.	Blood not buffy.
61	Female, aged 2¼.	Poor man's child.	Acute hydrocephalic form of typhus.	Aug. 9.	Aug. 12.	Acute fever--coma rapidly supervened, lasting a week—petechiæ.	Brain.	Antimonials--regular active purging—alteratives.	Aug. 12. Free scarifications of the gums.—Aug. 18. Hir. 2 ad tempora.—Aug. 19. Do.—20th. Do.		about the 31st of August.	about 21		This child infected its mother and uncle.
62	Male, aged 19.	Poor man.	Simple typhus.	Aug. 25.	Sept. 4.	Usual signs.		Usual treatment.	Sept. 5. V.S.B. ad un. 8.	Sept. 8.	Sept. 19.	25	contagion.	Blood thin and not sizy.
63	Female, aged 26.	Poor woman.	simple typhus bord. on the inflammatory.	Aug. 27.	Sept. 5.	Severe symptoms.	Brain threatened.	Usual treatment—blisters ad nucham.	Sept. 5. V.S.B. ad un. 8.—Sept. 7. Hir. 6 ad temp.—Sept. 8. Hir. 6 ad temp.	Sept. 9.	Sept. 19.	23	contagion.	Blood thin and not sizy.
64	Female, aged 32.	Tradesman's wife.	Acute inflammatory typhus.	Sept. 6, at noon.	Sept. 7, 3 o'clock P.M.	Sudden seizure, great prostration, pain in the occiput and back and a stitch in the side—delirium first night.	Chiefly the pleura.	Purgatives, alteratives, and digitalis blister ad latus.	Sep. 7. 3 o'clock P.M. V.S.B. ad un. 8 et sync. and 9 o'clock same day V.S.B. ad un. 4 et sync.—Sept. 8. Hir. 12 ad latus.	Sept. 9.	Sept. 13.			Delicate habit. Crisis by gentle perspirat. Blood thin, but slightly sizy and cupped.
65	Male, aged 6.	Tradesman's son.	Acute inflammatory typhus.	Sept. 29.	Oct. 2.	Insidious at first--delirious and maniacal suddenly on the 7th day—4th week severe cough and seeming hectic—pulse 108 to 150.	Brain first inflamed, lungs afterwards.	Usual treatment at first—blisters, opiates, and plumb. superac. in minute doses.	Oct. 5. V.S.B. ad un. 4.—Oct. 6. V.S.J. ad un. 4.—Oct. 7. Hir. 6 ad temp.—Oct. 8. Hir. 6 ad temp.	Orig. fever declined Oct. 15, hectic declined Nov. 2.	Nov. 9.	42		Another case of pseudophthisis. Delicate habit, and always subject to cough and palpitation. Blood not sizy.
66	Male, aged 8.	Farmer's son.	Sub-acute inflammatory typhus.	Nov. 2.	Nov. 3.	Sud. attack with epigastr. tenderness, vomiting, and purging—prostr. & delir.	Sub-acute inflammation of the stomach.	Aperients and effervescing salines.	Nov. 3. V.S. ad un. 4.—Nov. 4. Hir. 6 ad reg. ventriculi.	Nov. 5.	Nov. 7.	5	cold.	Blood slightly inflamed.
67	Male, aged 13.	Mariner's son.	Acute inflammatory typhus.	Nov. 1.	Nov. 6.	Prostration great, heat not extr., long contin. vomiting, delirium with stupor, at first reeling & staggering—tongue dry & brown—deafness--exces. irritation—much cough at last.	The whole nervous system.	Usual treatment with blisters and cold applications to the head—anodynes after the third week.	Nov. 6. V.S.B. ad un. 8.—Nov. 7. Hir. 12 ad temp.—Nov. 11. V.S.J. ad un. 6 et hir. 12 ad temp.—Nov. 12. Hir. 8 ad tempora.—Nov. 17. Hir. 6 ad stern.—Nov. 18. Hir. 12 ad temp.	Nov. 19.	Nov. 30.	30		
68	Male, aged 30.	Joiner.	Sub-acute inflammatory typhus.	Nov. 8.	Nov. 15.	Usual signs of fever, with staggering—nightly delirium, dry red tongue, swooning, & severe cough.	Chiefly the lungs.	Usual treatment—blisters, &c.	Nov. 15. V.S. ad un. 16.—Nov. 16. V.S. ad un. 12.—Nov. 17. Hir. 12 ad sternum.	Nov. 22.	Dec. 3.	25	contagion & cold.	The right foot and ankle were much swollen and inflam. towards the close.
69	Male, aged 16.	Farmer's boy.	simple typhus bord. on the inflammatory.	Dec. 10.	Dec. 20.	High fever, acute headache, insomnium, and sev. rheum. pains in the limbs.		Usual antiphlogistic treatment—blister ad nucham et aures.	Dec. 20. V.S. ad un. 10. et hir. 10 ad temp.—Dec. 22. V.S. ad un. 12.		convales. with. the month.		contagion.	
70	Female, aged 60.	Labourer's wife.	simple typhus bord. on the inflammatory.	Dec. 26.	Dec. 31.	Usual phenomena of fever, with the head acutely pained.	Brain threatened.	Usual treatment.	Dec. 31. V.S. ad lib. 1, hir. 12 ad temp.—Jan. 6. Hir. 8 ad tempora.		convales. with. the month.		contagion.	

OBSERVATIONS

IN

Medicine and Surgery,

BY

THOMAS SANDWITH, SURGEON.

"Experience is acquired with toil and labour; but when so acquired, and referred to its true principle, it then deserves the name of knowledge; for it is useful to its possessor."——ROBERT JACKSON.

PREFACE.

As the successful practice of Medicine hinges principally on the right employment of the lancet, it is hoped that the slight attempt in the following pages, to point out the principles on which the rules for its use in Inflammation depend, will be useful to the younger members of the profession. In his earlier practice, the Author frequently felt the want of precise rules on this most important subject, and is not aware of the existence of any such in the records of Medicine. A sort of empiricism has been strangely tolerated, and the precepts laid down in books are consequently vague and unsatisfactory. Our forefathers, Sydenham, Morton, and White, equally

with the ancients, considered quantity in blood-letting as indispensible; in which opinion they have been followed by the best observers; Cleghorn, Robert Jackson the younger, Hey and others. Many of the moderns, however, have regarded a speedy suspension of the vital functions as a matter of the first importance, and permanent debility, which can be induced by large depletion alone, and on which the cure of most inflammations depends, as an evil. And as both parties appeal to experience, without some principle to guide him in the discovery of truth, the mind of the young practioner must be in a state of suspense, unfavourable to the prompt and decisive exertion of its powers.

There are many diseases, in which the use of the lancet is imperfectly understood. Much of the obscurity, however, which clouded this interesting department of Medicine, has been already dissipated by

the moderns. Within a few years blood-letting has been extended to diabetes, fever, puerperal fever, dysentery,* some forms of dropsy, the exanthemata, and phlegmasia dolens; and for more exact rules for its employment in mania, we are indebted to the late lamented Dr. Percival.† Its further extension to some diseases frequently incurable, as purpura hæmorrhagica, menorrhagia, passive congestion of the lungs, and protracted inflammations of the serous membranes, is a desideratum which the Author of these pages has attempted to supply; and he sincerely hopes the junior members of the profession will profit as well by his errors, as by his successes.

"Feliciter sapit qui ex alieno periculo sapit."

In the paper on diseases of the larynx,

* For anatomical illustrations of the inflammatory nature of dysentery, the reader is referred to my friend Dr. Luscombe's work on the health of soldiers, p. 18.

† Dublin Hospital Reports, Vol. I. p. 117.

trachæa, &c. he has attempted to establish a distinction between that most fatal disease cynanche laryngæa, and subacute laryngitis, a very untractable disease when misunderstood. The Author met with a patient who had for ten years several annual attacks of the disorder; and the disease had been treated as bronchial catarrh by all the medical men who had seen her. He has also directed the attention of the reader to inflammation of the trachæa; a disease since the time of Morgagni frequently confounded with diseases of the lungs; in which however he has been, in some degree, anticipated by that most able pathologist Dr. Armstrong. The cases with dissections were originally published in the Edinburgh Medical and Surgical Journal, and are here reprinted, as a proof to the reader, that, in his investigations of disease, he has been, as far as his opportunities allowed, an observer of nature.

In estimating the value of his Observations in Surgery, the candid reader will consider, that the Author has not had the range of an hospital; and, indeed, in small provincial towns, highly interesting cases in Surgery are of very rare occurrence. He trusts, however, the reader will be interested by the revival and modification of an old operation for those frightful contractions of the neck, which succeed extensive burns; and that the attempt to mark the distinction between schirrous, and hydatid tumours of the female mammæ, will assist in rendering that department of Surgery more precise. The successful issue of one of his cases of Hernia, wherein the operation was performed under circumstances apparently hopeless, will encourage the young practitioner; who will also perceive from this case that the distinction between acûte and chronic hernia is often unfounded. The remainder of his Surgical Cases he

submits to the public in the words of the late lamented Mr. Hey, the patriarch of Surgery. "It will afford me pleasure, if the following sheets shall be the means of alleviating, in any degree, the distresess of the afflicted."*

Beverley, August 8, 1820.

* Hey's Surgery, Preface, p. v.

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MEDICAL OBSERVATIONS.

"The method of treating acute diseases, it may be observed, is
"still unfixed, and subject to dispute. We know something,—
"not all we might know, and not all we ought to know."

ROBERT JACKSON, p. 141.

MEDICAL OBSERVATIONS.

CASES

OF

Protracted Inflammation of the Pericardium,

WITH

REMARKS ON BLOOD-LETTING.

After all that has been written on the treatment of Inflammation, no attempt has been made to settle the extent to which blood-letting ought to be carried. The practitioner is left too much to his own discretion. To be told, that in certain diseases "the lancet is the anchor of hope," is a direction altogether vague and unsatisfactory. Happily the problem admits of solution—a near approximation to steady practical rules may be derived from reason and experience.

We observe a remarkable difference in the power of resisting the lancet, in the several tissues of the body when inflamed. Some inflam-

mations are cured by the loss of ounces of blood, while others require as many pounds; and between these extreme points the gradations are numerous. The tendency to suppuration in the *cellular membrane* is such, as almost to defy all attempts to accomplish resolution, while ligamentous parts have a disposition to neither; and the difference, in this respect, between the *mucous* and *serous* membranes must have struck the most careless observer. In inflammations of the mucous membranes there is so great a proneness to resolution, that we are sometimes content to make only a temporary impression on the system. We are surprised to see cases of peripneumonia notha, and inflammation of the mucous membranes of the stomach and intestines, yield to a single bleeding, and that occasionally a very small one. Dr. Clutterbuck observes, "In an instance of pneumonia I lately witnessed, of three weeks standing, in which blood-letting had been neglected in the beginning, and in which, from the continuance of pain and fever, with great difficulty of breathing, and a pulse approaching to

the hectic state, suppuration was to be apprehended, the loss of only three ounces of blood produced a very sensible feeling of weakness in the patient, which did not go off for several days. The benefit received, however, was not the less certain. The pain was almost instantly relieved by it, the fever and quickness of pulse diminished, the expectoration became free; and from this moment might be dated the commencement of the patient's recovery, which was evidently accelerated by a frequent repetition of blood-letting to the same amount, at intervals of six or eight days."* An important rule of practice may be fairly induced from these observations, which is, *in clearly marked cases of inflammations of the mucous membranes, to bleed the patient while upright*, in order to accomplish the resolution of the disease with the smallest loss of vital power; and here also the method of bleeding from a large orifice may be recommended. To mixed cases this rule is of course inapplicable.

* Clutterbuck on Fever, p. 281.

A different order of things obtains in inflammation of the serous membranes. Instead of a tendency to resolution, the disease, in the larger cavities especially, spreads with destructive rapidity; and the ultimate terminations of adhesion and effusion frequently prove fatal to health and life. Here a temporary impression made upon the system will not suffice. We must produce actual debility, and that very soon. *Our patients should be bled in the horizontal posture, in order that a large volume of blood may be abstracted before a disposition to syncope is produced.* In this manner the great Fordyce treated enteritis. Cleghorn* failed to cure pneumonia by milder measures; and it was by such means alone the younger Hey triumphed over puerperal fever. Their practices are founded on principle, although they were led to their adoption by the lights of experience.†

* Cleghorn on Diseases of Minorca.

† The rule here laid down applies also to typhus fever. On this subject I have great pleasure in finding Dr. Welsh's ideas accord with my own. He observes, "With respect to the manner of taking blood, it must be remarked, in the first instance, that, as its beneficial effects are almost always in

The same rule is applicable also to inflammations of the substance of vital organs. As in the cellular tissue beneath the skin, in these diseases there is no disposition to resolution; but the progress to sanguineous effusion and suppuration is extremely rapid. The former of these effects is illustrated by the great Haller, in two fatal cases of pneumonia, in which the cause of death was ascertained by dissection. In both of them, from a mistaken diagnosis, the lancet was not used sufficiently early, nor with adequate vigour. A case of pneumonia in a child once occurred to me. There had been quick breathing, and high fever, thirty-six hours before I saw the patient. By the immediate

direct proportion to the quantity taken, this ought always to be as free as the indications while it flows will permit. Hence the common practice of bleeding in the erect posture is carefully to be avoided; for syncope, as far as I have been able to observe, is not of the least service in checking the febrile symptoms; and as it is by the *quantity* of blood substracted, much more than the manner in which it is drawn, that the patient is to be relieved, it is manifestly injurious, by preventing a proper quantity of blood from being taken, and thereby a due impression from being made upon the system, and the morbid concatenation under which it is then labouring."—*Welsh on Blood-letting in Fever*, p. 176.

application of leeches, the fever was taken off, and the pulse reduced in strength and frequency; but the high breathing never ceased. The child lingered two or three days, and died. The appearances on dissection were such as I anticipated. In many places, the blood had escaped into the substance of the lungs, so that several portions of lung were solid, and sunk in water. The dissection was witnessed by my friend Dr. Hull. "Thus," as the great German anatomist observes, "in fatal cases of peripneumony, it is not in the vessels only that the blood is congested, but there is a true error loci."*

Nor does the treatment of inflammation of the ligamentous coverings of the joints (acute rheumatism) constitute an exception to this rule. It is the opinion of many of the moderns, that enlightened practitioner Dr. Scudamore among the number, that moderate depletion prevents the frequently deplorable consequences of rheumatic fever. He says, "a degeneracy

* Haller's Pathological Observations, p. 24. See also Morgagni, Epistola XX.

into chronic symptoms is in no way so powerfully promoted as by an intemperate employment of the lancet."* That relapses, chronic rheumatism, decrepitude, and a broken constitution, arise from the entire neglect of bloodletting, is proved by the case related in the dissections;† and, indeed, these evils are the natural effects of protracted inflammation of ligamentous parts. The opposite opinion, that they have their origin in large depletion, is unsupported by the evidence of facts, and, as far as my observation extends, is contrary to experience. My success in the treatment of rheumatic fever, in the first years of my practice, was unsatisfactory. Deterred by unfounded apprehensions, I did not use the lancet with freedom, and my patients had tedious recoveries and frequent relapses. Since I have adopted the rule under consideration, none of the ills predicted by Dr. Scudamore have occurred; the disease has yielded as soon as any other acute disease, and my patients have as speedily reco-

* Scudamore on Gout and Rheumatism, p. 378, 1st edit.

† See Diseases of the Head, Case 4.

vered from the debility induced by loss of blood. A century ago the treatment of rheumatism was better understood than it is at present. Coldbatch and Cockburn were in the habit of abstracting ten pounds of blood, and with the happiest results.* Dr. Haygarth's practice carries its own reputation along with it. Frequent and fatal metastases to the head, chest, and abdominal viscera, were the natural results of an entire disuse of blood-letting.†

Another rule, common to every species of inflammation, is to bleed in quick succession. If we wait till the system rallies, after the first blood-letting, little good is done; and sometimes, by the conversion of congestion into active inflammation, much harm. Frequently in inflammation of the lungs, the first and second bleedings, if not made in quick succession, increase the violence of the symptoms. A case of this kind occurred to me in the first year of my practice, and made a strong impression on my mind. A farmer's servant, a

* White de Rectâ Sanguinis Missione, p. 111.

† Haygarth's Clin. Hist. See Tables.

stout man, of a sanguine constitution, came to consult me for what he considered a cold, and stuffing of the breast. He complained of no pain, had no very obvious fever, and did not appear to be seriously indisposed. He was bled, however, to sixteen ounces, and the blood was covered with a blue coloured lymph. The next day, after a restless night, he had a pain in the side, and the pulse was hard and frequent. The bleeding was repeated to thirty ounces, and the crassamentum was then covered with a tallow coloured lymph. The day after, I found this patient with symptoms of violent fever—the pulse hard, strong, and quick; the urine scanty and red, skin hot, and the tongue white and dry. His breathing was high, quick, and convulsive; the cough incessant; and the pain of the chest extreme. Three large bleedings, in quick succession, entirely cured him. Since the above observations were written, some excellent remarks on blood-letting in pneumonia, by Mr. Bedingfield, have been pointed out to me by my brother. This judicious practitioner controverts the commonly

received opinion, that venesection from a large orifice is peculiarly desirable. On the contrary he advocates the propriety of bleeding from a small one. "By inducing syncope in this way, we both lessen the volume of blood, and diminish the rapidity of the circulation." "By bleeding from a large orifice," he observes, "the disease will be rendered more formidable. Just enough blood is removed to relieve the vessels from that state of over distension, by which their force and activity were restrained, and their ability to do mischief in a great measure prevented. The temporary debility induced by the operation is soon recovered from; when, freed from their previous state of distention, they are enabled to act with a degree of violence, which, in the course of a few hours, often proves destructive to the organization of the lungs, and lays the foundation of imposthume and effusion."* *Whenever therefore an inflammation is not cured by the first bleeding, the operation should be repeated every two, four, or six hours until it is.*

* Bedingfield's Compendium of Medical Practice, p. 110.

Another important point for consideration in the treatment of inflammation is, what is the maximum, as regards the quantity of blood that may be abstracted? In this part of our subject opinion is unsettled. Dr. Armstrong thinks that two or three decisive blood-lettings are enough. When the treatment is begun sufficiently early, the quantity obtained by this practice will generally suffice; but if this is to be the limit of our exertions, we deprive a large proportion of our patients of any chance of recovery. The rule consigns all neglected and protracted cases to their fate. In these circumstances, we seem to have no alternative but the method of Valsalva, viz. *to go on bleeding until the powers of life are too feeble to support inflammatory action.* Any fears of dropsy as a consequence of large depletion are unfounded: morbid anatomy has shewn hydropic accumulation to be one of the consequences of inflammation.* This practice was pursued in the

* Dropsies, like abscesses, and gangrenous eruptions upon the skin, arise, in most cases, from the *want* of sufficient bleeding in inflammatory diseases.—*Rush's Medical Inquiries*, p. 304.

following cases of protracted inflammation of the pericardium. The treatment in the first of them is not held up in all its details as a model to the young practitioner. Great errors were committed. The measures in the early stages were not consecutive; delay arose from the obstinate interference of a Brunonian physician. But the case is valuable, in as much as it shews how errors of this kind may be retrieved. The fatal event of the cases of pericarditis recorded by Corvisart, is attributable to the trifling use of the lancet. The same remark applies to the case recorded by Dr. Duncan, junior.* The candour, however, with which the learned doctor acknowledges the error he made in the diagnosis does him great honour. In the diagnostic part of the following case, I found his paper of essential use.

CASE I.

Mr. ——, aged sixty-four years, robust and sanguine, had a cold and cough for several days; but they did not affect his general health, or

* Edinburgh Medical and Surgical Journal, Vol. XII. p. 43.

prevent his attention to business. While he was at Beverley, on the morning of the 28th of March, he felt a stitch in the left side; in a little time it amounted to pain, which at twelve o'clock A. M. was excruciating. When I saw him, his countenance and gestures indicated great distress, and he was unable to move. The pain was diffused over the whole side, and was felt under the collar bone, and in the loins; but was most intense under the left pap. The pulse was 100 in a minute, strong and jarring. He was instantly bled to syncope (thirty ounces;) a violent rigor succeeded, and, after a few hours, he returned to his residence in the country, entirely free from pain. At eight o'clock P. M. he was extremely cheerful and talkative, feeling a little pain in the side, the seat of which he could not precisely define; respiration was free, the pulse moderate, and *no cough;* in short, it appeared to be a case of pleurodynia, and thirty leeches were applied to the affected side. At ten o'clock, there was a sudden eruption of nettle-rash; the face crimson, and the skin rosy, where it was not studded

with wheals, which, in the surface of the body, were as big as shillings and half-crowns. The urine was scanty, and rather red. In about an hour, the eruption suddenly receded, and the skin was bathed with perspiration. The pain had entirely ceased, and the next day he spent with his family, apparently in perfect health.

March 30th. The pain returned at six A. M. with great severity. He was put into a warm bath, and when I reached him was somewhat easier; the pulse 100, and the urine still scanty and red. I abstracted twenty ounces of blood, and anxiously looked for a return of essera. The blood shewed no size. The day was quiet, and in the evening, as a precaution, sixty small leeches were applied to the side.

31st. A *troublesome cough* came on during the night, and at six in the morning another attack of pain; the pulse 110, and urine red. No time was lost—twenty ounces of blood were abstracted, and a physician was sent for. The relief obtained by the bleeding was not at this time decisive. *The blood still shewed no size,* nevertheless *I was certain the disease was pneu-*

monia, and anxiously pressed another bleeding, which was overruled. In the evening a second physician arrived.* We found our patient in some pain, with a soft pulse, about 90 in a minute. In consequence of a difference of opinion between the physicians, one of whom was an obstinate Brunonian, our patient was not bled again till the afternoon of the 2d of April, when the symptoms left no doubt as to the nature of the disease. There was frequent cough with pain in the left side, quick breathing, fever, red urine, and a pulse 104 in a minute, and intermitting; and though our patient was bathed in sweat, taken in connection with the other symptoms it was certainly not critical. Twenty-two ounces of blood were abstracted with decided relief and syncope.

The two following days were calm and deceitful. The system was prostrate, but disease still remained. Blistering was had recourse to on the morning of the fourth, and in the evening there was much fever and irrita-

* Dr. Belcombe of York.

tion. The pulse was 100, but, when the blisters were taken off, it fell to 80. On a supposition that the inflammation was cured, and, considering the age of the patient, a sufficient impression had been made on the system by the lancet, it was determined to treat the cough which remained with milder measures. Accordingly the digitalis and antimonial wine were commenced after the last bleeding, but although a tea-spoonful of the antimonial wine was exhibited every hour, and constant nausea sustained for twenty-four hours, it was perhaps worse than useless as it masked the disease. Fever returned again in the evening of the 5th, and it was clear that it was owing to inflammation. The pulse was 90, irregular, and intermittent; the cheeks were flushed, particularly the left, and the cough was incessant. It had a whistling sound, and extorted the most dreadful moanings. After much pumping, a little frothy sputum was obtained, the patient was wearied beyond measure, but could not sleep. In this state of things *the respiration was natural,* and the urine jumentous. A pain was still

perceptible under the left pap; our patient could cover the spot with his finger, and up to this time, it is worthy of remark, he had a clear conviction of the impotency of our efforts. He talked with composure of his death, and fervently prayed for a speedy termination of his sufferings. I never saw the desire of death more strongly exemplified. *The pneumonia indeed was cured, but there was evidently an inflammation still existing in the pericardium.* This opinion did not concur with that of one at least of the other medical attendants.

6th. The morning was quiet as usual, but in the afternoon fever returned; the pulse 104 in a minute, irregular and intermitting every fifth or sixth pulsation. The cough too was horrible, and the carotids beat violently. My opinion now was no longer opposed. Our patient was bled usque ad deliquium (fifty ounces,) and was in a state verging on syncope for several hours.

7th. Early in the morning, in order to secure the advantage we had gained, we abstracted twelve ounces more. The effect was decisive, and our patient, for the first time, expressed a hope of

recovery. The next three days, the system was in a state of torpor; all was quiet, and we hoped to have nothing to contend with but debility. We now attempted to mercurialize the system, but the medicine passed off by the bowels.

11th. These were the symptoms,—ordinary respiration good, and our patient could fill the chest with ease. He had a little pain under the left pap, when he turned on that side, the pulse soft, unsteady and intermitting, urine in tolerable quantity. A degree of fever came on in the afternoon, and with it a most troublesome cough, attended with a viscid mucous expectoration. A blister was used and the squill and digitalis ordered. The blister was kept open, and the diuretics continued till the morning of the eighteenth, when our patient appeared to be convalescent. That very evening he had a *relapse*. Fever came on with reddish urine, the heart beat violently, and with the carotids shook the whole frame, the pulse 120. The cough became incessant, and he had intense thirst. Towards morning (two o'clock A. M.)

he was seized with extreme pain under the sternum, a little above the easiform cartilage, and rather to the left side; it struck through the chest, and extended to both scapulæ. I saw him at four A. M. he was pale and alarmed. Twelve Leeches were applied, and sixteen ounces of blood taken from the arm.

20th. A comfortable night was the result of these measures, but the next morning we found it necessary to abstract sixteen ounces more blood. After this the pulse was truly soft and undulating.

22nd. The return of fever and rapid pulse induced us to bleed to thirty ounces more. The two following days were full of hope. The state of the urine and expectoration were admirable, and the heart and arteries were tranquil.

The 25th was a good day, but the fever returned in the afternoon, and the cough was dry and incessant. At twelve o'clock P. M. pulse 120 full and strong, and the pulsations of the heart and carotids shaking the whole frame. I durst not use bleeding,—twenty-four good

leeches were applied to the side, and eight ounces of blood by these means abstracted.—While the leeches were on, the breathing became slow, and the cough ceased. An additional dose of the tincture of digitalis was then given, and I retired. At eight o'clock he was almost exanimate, the face corpse-like, and the pulse vermicular, and past numeration. In a few hours, these symptoms were over, but the debility the whole of the next day was extreme. There was a constant risus sardonicus, and trembling of the lower jaw. He slept profoundly that night and the whole of the next day, and awoke the following morning with a complete loss of mind, the memory gone, and the countenance imbecile. But his powers quickly returned, all the functions were well performed, and save a trifling cough, at the end of the month, we could not discover a vestige of disease. It is needless to observe, that gentle purges were used during the progress of the disorder, and the antiphlogistic regimen rigorously enforced.

The next four or five weeks, his health and

strength gradually increased, and at the expiration of that time he was able to go about his ordinary business. Many unpleasant circumstances attended his convalescence. The pulse was never below 80, it might be averaged at 84. There was a sort of catch in his breathing, which when he entered into conversation clipped his sentences in two; his nostrils remained without secretion, and there was occasionally a circumscribed flush on one or both the cheeks. The stools too were clayey. I apprehended hydrothorax, but he made abundance of urine, his ankles were scarcely swelled, he slept well, and his position in bed was good. For three weeks his diet was wholly vegetable, we then indulged him with a little fish and white meats alternately, every other day. The appetite was voracious, and his temper extremely irascible.

Towards the close of June the weather was beautifully fine, and he was allowed to go out. His house is seated on a hill, and a sea breeze blows from the Humber every afternoon. Our patient, too, imprudently attended to business,

where he met with many things to irritate him. He was alternately heated and chilled, and the result was a violent catarrh.

June 5th. On this day the catarrh commenced, and these were the symptoms, head-ache, a running of the nose, cough and a defluxion of mucus, glary from the lungs. The throat, chest, and belly were sore; there was fever, which increased as evening approached, and at bed-time he coughed incessantly. It was also necessary to bolster him up in bed.

The remedies were purges, blisters, squill, and digitalis; and the antiphlogistic regimen. Their effects were happy. The soreness went off, and in seven days the expectoration was no longer glary, and very inconsiderable. Matters went on well the three succeeding days; the cough and expectoration were insignificant, and there appeared to be nothing but general dibility, and disorder of the digestive organs.

On the 16th. I began my letter to Dr. Belcombe thus—

"My journal will afford you a most satisfactory account of Mr. ——'s disorder, which I

hope will soon be with the departed shades of hydrothorax, imposthume and phthisis (all of which, by the way, had in turns entered my imagination,) there has been a gradual decline of cough and expectoration; both of which are now inconsiderable. The respiration, the position in bed, and the pulse have improved proportionably."

June 19th. He was costive, complained of head-ache, distention of the stomach, and was dispirited. A brisk purge relieved all these symptoms, but the next four days, the intermission of the pulse returned, with an increase of cough. It was necessary to bolster him up in bed again, and he could not lie on the left side; he started in his sleep, and had a sense of suffocation. With these symptoms my fears of hydrothorax returned, and Dr. B. was again sent for.

30th. He was bled to six ounces. The blood was thick and sizy, and the operation was repeated to ten ounces in the evening; the squill and digitalis were resumed. That day he made no urine, and only a pint during the

night, which was cloudy. He started much that night.

Afterwards the symptoms were pretty uniform: a quiet day, fever, flush of the cheeks, in the evening, with an accelerated pulse, and distressing cough. The fever after a few hours terminated in a gentle sweat; he fell asleep, and awoke now and then, to cough. His urine was very abundant, and clear. A few nights, a little spitting of blood, and more fever induced me to bleed him, from which time he evidently amended. Every exposure to air had the effect of bringing back an increase of fever and cough, with frothy sputum. He was therefore confined to his room, an uniform temperature preserved, and the antiphlogistic regimen attended to.

By the steady use of a regulated temperature, and a vegetable diet, the cough at the close of August was nearly well, but the bowels still remained irregular. The stools were altogether without bile, and there was great tendency to diarrhœa. With these complaints, and great emaciation Mr. —— went

into Devonshire, for the benefit of a milder air. He had not remained there many weeks before he had a violent purging of a black offensive matter, probably a vitiated secretion from the liver. His life was in great hazard; but by the care and judicious measures of Dr. Miller of Exeter, a physician of deservedly high reputation, immediate danger was prevented. Afterwards there was a natural secretion of bile, his bowels became regular, digestion perfect, he lost his cough, and the following year returned home, stouter, and enjoying better health than he had done for many years before.

Case of Sub-acute Inflammation of the Pleura and Pericardium.

Pulmonary infarction, and consequent obliteration of the air-cells of the lungs; adhesions of the pleura to the ribs, a state of parts which is frequently the foundation of hydrothorax;* and chronic inflammation of the pleura and pericardium, are the most common effects of the sparing use of venesection, in inflammatory

* Bailie's Morbid Anatomy, p. 60.

affections of the chest. The following case is worthy of record, not only as an illustration of the last of these effects, but as another example of the powers of the lancet in protracted inflammation.

Mrs. ———, a delicate female, of the nervous temperament, had a catarrhus gravior, which she neglected. It was succeeded by a cough, and puriform expectoration, (bronchitis chronica,) which also was disregarded. The weather was damp, and cold, it was November, and at the end of a month, she had an attack of pleurisy on the left side, near the pericardium. Two bleedings from the arm, and leeches to the side, with the usual means of subduing fever, constituted the treatment the first day.—She was seen on the second, by an eminent physician, who prescribed another bleeding, a small one, and a blister for the side. The disease was masked by the blister, and on the supposition that the inflammation of the side was cured, the cough which remained was left to digitalis and low diet.

It receded very gradually, and it was several

weeks before all fever could be said to have subsided. Although mild diuretics were prescribed, the urinary secretion continued irregular; sometimes the quantity was considerable, but it was always slightly clouded, and was generally scanty. At length the patient apparently recovered her wonted health. Her strength had returned, and the cough had ceased: but some local affection evidently remained. She had no pain in ordinary respiration, but a very deep inspiration or any sudden exertion caused a pricking, or teasing sensation in the side. She felt a weight and uneasiness there, and outwardly the flesh was tender to the touch. It did not however prevent her from attending to her domestic duties, or appear to her a case that required medical attention.

Six weeks afterwards, she had a fresh attack of inflammation, and the following was the order in which the symptoms appeared. There was a new catarrh. It did not, however, begin in the head, but in the trachea; she felt a tickling there, and coughed much. In order to shorten its duration the lancet was used. The usual

antiphlogistic measures were adopted, and in a few days, all was apparently well again. But this truce was fallacious. Whether she caught another cold, or the disease had imperceptibly extended itself I am uncertain, but she complained in a few days of soreness in the upper part of the breast, with a renewal of cough. Another bleeding and a blister to the sternum were the remedies; and expectoration became easy. Here also the truce was fallacious. The cough increased, at the same time that expectoration decreased. She was feverish, and though she respired well, whenever she coughed she complained of a pain near the bottom of the sternum. It soon extended to the side first affected, and there was pain there also. *There was evidently subacute inflammation of the pleura and pericardium.*

Nothing short of actual debility could remove such an inflammation. To this end therefore our measures were directed. The lancet, relays of leeches, and the digitalis were used until such actual weakness was induced, that for several days the patient was in a state of

half syncope. Her convalescence afterwards was sure and rapid. It is proper to remark on some extraordinary nervous symptoms which attended this case, when the pericardium was diseased. The heart sympathized, there were regular palpitations, with intermissions of the pulse every evening. The carotids beat violently. The patient was then plunged into melancholy, and was seized with a fit of jactitation or choræa; an involuntary disposition to kick the legs about, which almost ridiculous symptom continued most of the night. These symptoms disappeared when she regained her health and strength. It is now two years since this lady recovered, and since that time she has had better health than she ever had before; and has never had a return of catarrh or pleuritic inflammation. I have great pleasure in referring the reader, for an admirable description of chronic inflammation of the pleura, to the valuable work of Dr. Armstrong* on consumptive diseases.

* Armstrong on Scarlet Fever and Consumption, p. 188.

ON THE UTILITY OF BLOOD-LETTING

IN

Bleeding Diseases.

A STRIKING improvement in modern practice, is the extension of blood-letting, and the antiphlogistic regimen, to a tribe of bleeding diseases, which, from their peculiar unmanageableness, have been long numbered with the opprobria medicorum. And yet, if practitioners had been guided by analogy, rather than the uncertain lights of nosology, the use of tonic and astringent remedies, in diseases of this order, would have been kept within narrow limits. No modern practitioner ever prescribed such medicines for hæmoptysis, and bleeding from the nose was generally regarded as a sign of plethora. Even in fever, Sydenham and many of the best observers considered petechiæ as the result of excessive arterial action, and the use of astringents in the piles was unknown. Not-

withstanding all this, the other genera of this formidable class of diseases have been indiscriminately abandoned to a cordial and tonic plan of treatment. It is true, many hæmorrhages are the offspring of direct debility, but compared with those that originate in plethora, the number is but small; and being unattended with the signs of over excitement, are easily distinguishable.

The marks of over excitement in the majority of bleeding diseases are generally apparent—slight shiverings, alternating with heat of the hands and feet, flushing of the cheeks, thirst, and an accelerated pulse. Instead of these symptoms, very frequently, however, they are combined with a state of apparent debility, which the speedy relief afforded by blood-letting proves to be of an indirect kind. It is a prostration of strength, as in violent fever, and intoxication, arising from increased action of the heart and arteries; and they have their origin, more gradually than is supposed, in a degree of fulness which actually impedes the action of the circulating powers—a state of the system

to which the expressive term *congestion* has been applied.

Another feature in these diseases, is the effect of this state of *congestion* of the general system upon particular organs. Melæna is very often accompanied with symptoms of apoplexy, which yielding, together with the alvine discharge, to bleeding and purgatives, shew its genuine character. In two cases which occurred to me, in addition to coma, the face was flushed, the head burning hot, and the carotids and temporal arteries beat strongly. We need go no farther than Fernelius to shew, that former observers have seen the connexion of these diseases with congestion of the liver. Speaking of torpor of this organ, he observes, " Sæpius etiam, quum hæc imbecillitas increvit, sanguis sponte profluit è venis, idque per *nares*, vel per *uterum*, vel per *hæmorrhoides*, vel per *sputa*. Sed et interdum sanguinem animadverti ab extremis venis quæ in *cutem* desinunt, multis è locis effundi, qui nullo ardore livescebant."*

* Fernelii Ambiani, Universa Medicina, Lib. VI. p. 572.

Mænorrhagia I have twice seen connected with actual enlargement of that organ, and several times attended with the following train of symptoms:—oppression of the præcordia, palpitation of the heart, a state of respiration similar to angina pectoris, together with a sallowness of the skin; and that species of dropsical accumulation in the cellular tissue which Grapengiesser has denominated hydrops plethoricus. Finally, I have seen purpura hæmorrhagica combined with melæna.

It will be seen by the cases at the conclusion of this article, that, if we always regard purpura and mænorrhagia as diseases of direct debility, we shall be baffled in our attempts to cure them. Regarding them, however, as diseases of excitement or congestion, a solution is afforded of all the otherwise perplexing symptoms; and what is of more importance, we are at once put in possession of a simple and efficient method of treatment. In these cases also the opposite modes of practice are well contrasted.

Case of Purpura Hæmorrhagica.

Mr. B., a stout farmer, fifty years of age, consulted me (October 1817) for symptoms of the disease called purpura hæmorrhagica. He is a fat man, and plethoric; but his habits of life, except in the use of tobacco, which he chews largely, have been always temperate. In addition to a profusion of purple spots and wheals, he was feverish, his feet hot, and his legs ulcerated. Having found free purging, followed by the use of bark and sulphuric acid, relieve him, on two former occasions, when the disease was less violent, I adopted a similar practice now, with some success; but the relief afforded was but temporary; and without my knowledge he was advised to consult a distant practitioner, who sedulously prescribed alum and the most powerful astringents.

I did not see my patient again for six months, and his appearance was sadly changed. Spots of a deep scarlet colour, some, distinct like flea-bites, and others confluent, covered the whole skin. He complained of extreme debility, and

his appearance shewed its fearful extent. He was greatly emaciated; the skin had a dirty cadaverous appearance, instead of its usual florid hue, and was loose and flaccid. All exertion gave pain, and he was low and despond-ing. He had a dry tongue; and his pulse was full, and 120 in a minute. The bowels were very irregular: costiveness alternated with diar-rhœa; and two days prior to my seeing him, he had alvine discharges of the colour and con-sistence of tar. When first made, his urine resembled turbid small beer; but on cooling it contracted a darker tinge, and finally exhibited a livid cloud, in a state of suspension. He complained of his feet, which were generally burning hot. Before recourse was had to other measures, the case was stated to Dr. Bateman, who considered, as I did, the symptoms to be dependant on visceral congestion, and recom-mended the abstraction of six or ten ounces of blood from the arm, and as much to be taken from the side by cupping. He also advised a regular action of the bowels to be kept up by small doses of Epsom salt in the infusion of

roses, small doses of the blue pill, and strict attention to diet. The first bleeding, which amounted to twenty ounces, shook our patient considerably, and two days elapsed before I ventured on a repetition. The blood was covered with a thick coat of buffy size, and was cupped. He bore the next bleeding better, and a few days afterwards his countenance manifested an extraordinary improvement. The eruption was fading, the ulcers healing, his bowels were become regular, with an entire change in the colour of the fæces, and his spirits were greatly enlivened. Encouraged by these omens of ultimate success, the remedies were continued, and he was bled twice a week, till every trace of disease disappeared. Dr. Bateman* has seen this disease removed by a severe catamenial flooding in a female patient; and two cases cured by the lancet have been published by Dr. Parry,† of Bath.

* Vide Reports of the Diseases of London, p. 120.

† Vide Edin. Med. and Surg. Journal, Vol. V. p. 7.

Case of Mænorrhagia.

The notes of this case are mislaid; but though several years have elapsed since the recovery of my patient, the circumstances are fresh in my memory.

Mrs. ——, aged forty-six, had laboured under profuse mænorrhagia twelve months when I saw her; during which time she had been under the care of two practitioners of great eminence, and undoubted talent; and the whole round of tonics, astringents, and stimulants, had been used without any alleviation of her complaints. She was a large woman, fat, and plethoric, but now very much reduced by disease. Her face had that pale sickly hue which Darwin calls bombycinous, and her ankles were somewhat swollen. Swimming, vertigo, restlessness, and great flutterings of the nervous system, formed but a small part of her complaints. When she was quiet, her respiration was tolerably well performed; but the smallest exertion brought on a paroxysm of breathlessness and palpitation of the heart; and whenever she walked a few

yards, the hurry of her breathing, and a sense of annihilation, compelled her to halt until respiration was less hurried. The pulse, always frequent, during a paroxysm counted 130 or 140 in a minute. She was seldom free from catarrhal complaints, and there was great irregularity in the functions of the kidnies and intestinal canal. The urine was commonly pale, the fæces white, and she was much oppressed with flatulence, and had pain in the sternum and arms, as in angina pectoris.

With regard to the uterine symptoms, the discharge, about the regular periods, was immense, and mixed with coagula; and was attended with pain in the loins and sickness, as in painful menstruation. It continued in this manner about a fortnight, and was then converted into a profuse leucorrhea, which continued or alternated with a sanguine discharge, until a profuse hæmorrhage announced the return of the regular period. The nervous symptoms seemed to fluctuate with the state of the discharge.

The practice I adopted varied little from that

of my predecessors. To the use of bark and mineral acid, diuretics and gentle laxatives were added; and occasional recourse was had to opium and cerussa acetata. Temporary advantage was all that was obtained by these means; and after a trial of some weeks, Dr. Alderson, of Hull, whose extensive experience, and successful treatment of this disease, will, I trust, be one day submitted to the public, saw her. I confess I was startled at the proposal of bleeding a patient in a disease in which there was already great hæmorrhage, and wherein the loss of blood had been immense. The first and second bleeding seemed to add to the general debility, but afterwards there was greater freedom of respiration; the palpitation ceased, the complexion changed, the uterine discharge was lessened, the digestive functions were renovated, and sleep returned. After five bleedings our patient was convalescent, and her recovery has been most perfect.

CASE II.

I have recently witnessed the recovery of a female in mænorrhagia. The complaint, for six months, baffled the efforts of several eminent

practitioners. The symptoms resembled those in the case just described, and the most powerful astringents were used. The patient forty-two years of age, of a delicate habit, with a tendency to obesity; that sort of constitution in which fulness of the vascular system is combined with weakness in the texture of the vessels. Five years ago she had a disease of the liver (congestion probably.) Her medical attendants were aware that blood-letting was then indicated, but considered the weakness of her nerves a sufficient counter indication.

Since that time, her health has not been good. The last six months she has been afflicted with mænorrhagia, and discharge of coagula, which has greatly enfeebled the general system.

When she first put herself under my care, she complained of great debility. The skin was bombycinous, the hands exsanguine, the breathing hurried on exertion, together with palpitations and faintings. The pulse 100, and small. Three small bleedings, with gentle laxatives, and abstinence from every kind of stimulant, completely cured the disease, and restored her general health.

ON

PASSIVE CONGESTION OF THE LUNGS.

THERE is a disease of the chest, in which the right chamber of the heart, the pulmonary artery, and the venous system of the liver, are overcharged. The blood is imperfectly arterialized, and the system is supplied by the left side of the heart imperfectly. The symptoms of this disease are, a feeble pulse; a cold, pale, and relaxed skin; a painful struggling in the region of the heart, which beats violently, while the pulse at the wrist is weak; shortness of breath, dyspepsia, and occasional syncope. Cordials aggravate this condition of the heart and lungs; and should not be used even when the patient is in a condition resembling syncope. It is pleasing in such circumstances to see a debilitating power, *viz.* the lancet, restore animation.

CASE I.

A slender young man, aged twenty-three years, was a resident in a hot climate many years, where he contracted a virulent gonorrhœa; and his health being much broken, he was induced to return to England. His look was consumptive; he breathed ill, and could not expand the chest; his skin had a dirty relaxed look; the pulse frequent, small, and contracted; and he complained of palpitation, and pain in the region of the heart, upon the smallest exertion. His appetite was not good, and he had a sinking feel in the region of the stomach.

Under the care of a physician, who considered the disease asthenic, and treated it with wine and bitters, at the end of four months he found his complaints increased. This induced him to dismiss his medical adviser. New measures were next pursued, the principal of which was blood-letting. The effect of the first venesection was almost magical. The pulse seemed to leap out of durance, and spring forth, full, free, and bounding. His respiration and spirits

improved; he soon completely recovered; and has remained free from disease many years. The blood was not sizy.

CASE II.

A young lady, during many years, occasionally had symptoms of this disease. The complaint commonly proceeded to syncope, or a state very closely allied to it, before I was summoned to attend her. I found her deadly pale, the face bedewed with a cold sweat, the jaw rigid, and all the powers prostrate, except consciousness. Stimulants always increased the pain and struggling at the heart.

It was delightful in these circumstances to witness the effect of bleeding. The pulse, before imperceptible, rose as the blood trickled dowu the arms; and the pallid ice-cold cheeks recovered the warmth and colour of health. When neglected, this disease produces spitting of blood, or inflammation of the lungs or liver.

ON ERYSIPELAS

FROM THE BITES OF LEECHES.

In no disease is blood-letting more necessary than in Erysipelas, especially when it attacks the face and scalp. Two of the most formidable cases I have ever had to encounter, were the effects of the application of foreign leeches to the temples.

In March 1819, Mr. W., a robust young man, had a slight ophthalmia membranarum. His eyes were simply bloodshot, and he was able to pursue his usual avocations. To remedy the inconvenience, he applied a few leeches to the temples, and was afterwards bled from the arm. The disorder not yielding, for the weather was cold, and the wind easterly, he had again recourse to leeches, and six were applied to the temples. Considerable tumefaction of the face, forehead, and temples succeeded. The stomach sympathized, and he complained

of continual nausea. The pulse was soft, slow, and weak. In this situation I found him.

He was advised to remain quiet on the sofa, to purge freely, and keep the tumified parts constantly covered with a tepid bread and water poultice. The effects of these measures were happy. On the morning of the third day, his health was perfect, his spirits buoyant, and there was no trace of swelling on the face and head. His eyes, however, continued intensely bloodshot, and I therefore advised him still to abstain from business, and be bled from the arm. These recommendations, feeling so well in other respects, he thought superfluous. In the afternoon (two o'clock) of the same day, a most severe attack of erysipelatous inflammation suddenly came on. His head was swollen, the eyelids closed by tumefaction, and the pain in his head intolerable. He was visited in my absence by Mr. Chalmers, who bled him from the arm to twenty ounces. No tendency to syncope supervened, and a few minutes after the operation his sufferings were as great as ever. About seven o'clock Dr. Hull saw him along with me.

We found him complaining of intolerable pain; he could bear neither light nor sound, and there was an irritability of mind approaching to madness. The head and face were swollen to an enormous size, and the eyes closed up; notwithstanding which, and although the room was darkened, the small increase of light produced by undrawing the curtains of the bed, nay the very name of light, was agony. His pulse was quick, full, and strong; and he vehemently requested some attempt might be made to relieve him. It was evident that the bleeding from the arm, though carried to the extent of twenty ounces, had failed to relieve, because the system was unaffected; it was therefore agreed in consultation to open the temporal artery, and bleed him ad deliquium. Thirty-five ounces of blood were abstracted *pleno rivo* before he fainted. After the return of sensation, he expressed himself grateful for the relief he experienced. Free purging was now instituted, and antimonials ordered. The relief the patient experienced did not continue many hours: he had a wretched night; and about four o'clock the following

morning, the bandage was removed from the artery, and forty ounces of blood abstracted. We resolved to produce syncope while he was in the horizontal posture. Blisters were now applied to the temples and neck. Notwithstanding these vigorous measures, it was a day of suffering, which increased as night came on. We still hesitated to push the lancet further, but towards morning the patient's torments rendered it necessary. The tumefaction was unabated; there was the same intolerance of light and sound; and although the pulse was humbled it was not subdued. It appeared also probable, that, if the patient was upright, after the loss of so much blood, the abstraction of eight or ten ounces would have the desired effect. The artery was again opened, but it required the loss of thirty-five ounces to produce syncope. It was then most complete, and the patient effectually relieved. His recovery afterwards was rapid: no disease of the eyes remained; and in less than a fortnight Mr. W. resumed his professional labours.

To remove any idea that too much blood was

drawn in this case, I subjoin the following, in which less vigorous measures were trusted to.

CASE II.

A healthy young woman, in the seventh month of her pregnancy, had an ophthalmia of the left eye. She was bled twice from the arm, and six leeches were applied to the temple. Three days afterwards she had an erysipelas of the head and face. They were frightfully swollen, and there was pyrexia. Twenty ounces of blood were abstracted, and the pain was relieved. During the night, however, symptoms of labour came on, and she was delivered before morning. She was tranquil the remainder of that day, afterwards the disease advanced with rapid strides: the face and head were swollen to an incredible size; there was continual delirium, and a complete tympany; the pulse sunk rapidly; and she soon died.

N.B. It was the Author's intention to have given illustrations of the necessity of blood-letting in scarlet fever, and the measles. The fatal cases

of scarlet fever, he has witnessed, were clearly connected with local congestions of the vital organs, especially of the brain. In the majority of cases, the steady use of purgatives is sufficient; but in all the graver forms of the disease, as in typhus fever, recourse should be had to the lancet. In directing the attention of the profession to this subject, Dr. Armstrong* has conferred a great benefit on mankind.

* See Armstrong on Scarlet Fever, Measles, &c.

ON THE PATHOLOGY

Of the Mucous Membrane

OF THE

LARYNX, TRACHÆA, AND BRONCHIÆ.

Of that most dangerous disease cynanche laryngæa, as described by Huxham, Farre, and Baillie, I have seen but one example; and notwithstanding prompt and decisive measures were employed, it proved fatal in sixteen hours. As the multiplication of recorded cases can alone secure it a permanent place in books of nosology; and what is of greater importance, convince the young practitioner, that it is not a mere medical rarity, but a disease of sufficiently frequent occurrence to render it a subject of serious concern, the narrative of the following case will not be deemed superfluous.

CASE.

Mr. R. aged fifty, a stout man, had a sore throat, (cynanche laryngæa) three days. On

the evening of the third day he drank a glass of hot rum and water, and the next morning had symptoms of cynanche laryngæa. The signs were unequivocal, and my assistant, who saw him in my absence, bled him to thirty ounces. This was done at nine o'clock A. M. leeches were also applied to the throat. Dr. Hull visited him at three, P. M. and repeated the bleeding to fifteen ounces. A few hours aftewards, I returned from a journey in the country, and saw him.—I found him breathing high, the respiration sibilant, and the lips livid. The larynx was painful to the touch. The bleeding was repeated to sixteen ounces, and calomel and tartar emetic ordered in large doses. About eight o'clock, he was so much better in every respect, we entertained hopes of his recovery. His respiration, and complexion, were decidedly improved, and whenever he coughed, he expectorated freely a copious puriform fluid. The pulse was soft and slow. About midnight he died suddenly, apparently suffocated by the secretion from the inflamed membrane.

While on the subject of cynanche laryngæa it is worthy of remark, that we are not indebted to modern medicine for the description of this frightful disease. Huxham has given us a forcible description of it, and even pointed out the propriety of bronchotomy. He observes, speaking of the diseases in January 1739,—"Numbers were seized with a violent angina, with a very acute pain in the ears, to which were also frequently added a parotis or abscess in the fauces; nay sometimes a phrenzy and sudden suffocation. I knew of two or three who very suddenly were taken off that were as if they had been thunderstruck, and quite stupid, whose voice was at first most surprisingly shrill, but very soon was quite stopped. One of these swallowed down whatever was offered him, much more easily than any one would imagine. This dreadful symptom is always most greatly to be feared, as it denotes an inflammation of the arytœnoid muscle, and the upper parts of the aspera arteria; hence the opening of the glottis being quite shut up, the breath is immediately suppressed, and this shrill noise is the

diagnostic sign of such an inflammation. In this fatal disease bronchotomy sometimes snatches a patient from the jaws of death."

Again, "if there is ever any necessity for caution and expedition together, it is so in the suffocating angina; a melancholy proof of which I formerly met with in a particular friend. He was near sixty, ruddy in his countenance, and almost every day delighted in the use of the cold bath. One Saturday morning, having used the cold bath as usual, after noon being seized with a violent shivering, he was almost frozen, and soon after grew most excessively hot: presently came on an intolerable burning in the fauces, and a most acute pain. In the evening he was blooded; about midnight being sent for to him, I ordered sixteen ounces of blood to be drawn, an emollient glyster, with a good deal of sea salt, to be injected; manna, cream of tartar, and nitre in some laxative decoction to be given him largely, very large and very stimulating blisters to be applied to the neck. On Sunday morning every thing appeared much worse, so that the swallowing

down any thing, whether liquid or solid, much less a sufficient quantity of manna, &c. to give him a stool was almost impossible. Upon this ten ounces of blood were drawn off by cupping him upon the neck and shoulders, and blisters applied to the scarifications, a stronger enema also was administered; but notwithstanding all this, the malady was not any way abated; nay his voice now became much shriller, and now and then even quite suppressed. Upon this account I suggested something about bronchotomy; however, as those who were present muttered among themselves, that this was the way to destroy the person, and not to save him, and I was also at that time a young physician, I was timorous, and desisted from the operation, lest I might have been thought to have killed my patient, if I had not by that means saved him: a vein therefore was again opened, and the enema again repeated. There was now much less difficulty in swallowing, and also less pain, the voice was nevertheless still exceeding shrill, and now and then quite stopped. Moreover, the greatest difficulty likewise in breathing,

the highest anxiety upon his spirits, the pulse exceeding fluttering, and oftentimes quite intermitting, with a coldish sweat. I now heartily repented of having omitted bronchotomy, being at length sufficiently certain that the lungs were now overwhelmed with the disease, by a fatal translation of it upon them. Whilst I was further deliberating what was still to be done for the worthy man, he imperceptibly voided a stool, and being immediately after seized with a convulsion of the nerves, expired within six and thirty hours from his first seizure."*

But there is a milder species of this disease, which Tissot thus describes:—"The general symptoms of an inflammation of the throat are, shivering, the subsequent heat, fever, and headache, red-coloured urine, a considerable difficulty, and sometimes an impossibility of swallowing any thing whatsoever. But if the nearest parts of the glottis are attacked, breathing becomes excessively difficult, the patient is

* Huxham's Observations on Air, Vol. II. p. 24.

sensible of extreme anguish, and great approaches to suffocation."*

CASE.

Whenever Mrs. S. catches cold she has a sore throat, and in a few hours the inflammation extends to the glottis. The face then becomes pale, the eyes dull, and the pulse accelerated. These symptoms, with a feeling of uneasiness in the top of the larynx, and a sort of hustling, or attempt to remove some cause of irritation in the larynx, mark the commencement of the disease. Towards evening, the symptoms increase, and she dare not sleep from the dread of suffocation. If she doses she springs up suddenly, struggles for breath, is covered with a cold sweat, and is in the greatest trepidation. Towards morning, a constant tickling cough succeeds, and the process of expectoration takes off the sense of suffocation. This cough is most harrassing. When the disease has been misunderstood, and active measures not pur-

* Tissot MSS.

sued, the cough has tormented her for months; and only ceased when the system has been fairly worn out by continual irritation and actual debility induced. It yields readily to one or two bleedings, the steady use of the digitalis, and low diet.

Another disease, less immediately dangerous, but certainly fatal if neglected, is, inflammation of the trachæa. Dr. Armstrong* has given a most accurate description of it, and while he points out its insidious nature, shews how certainly fatal it is, when overlooked and mismanaged. Of this disease I have seen several well marked cases.

CASE I.

The disease in this case began with general indisposition, and a feeling of uneasiness about the trachæa. The patient, Dr. L. supposed his complaint was a common cold. Towards evening there was evident pyrexia, the pulse 100

* Armstrong on Scarlet Fever and Consumption, p. 182.

and contracted. The throat was sore, and the trachæa immediately below the larynx was tender to the touch.

V.S. ad un. xii. the blood covered with a coriaceous coat, and cupped. About three o'clock in the morning the disease was increased; the trachæa was more painful to the touch, there was some cough and hurry in the breathing; pulse 84 and small, and the urine scanty and red. There could be no doubt of the existence of inflammation of the trachæa, and of the necessity of free bleeding. V.S. ad un. xxx. blood very sizy; leeches were also applied. In the evening, the pulse was 100; the throat red; hoarseness, and a decidedly croupy cough. V.S. iterum ad un. xxx. By these decided measures the disease was arrested, and his convalescence was rapid.

CASE II.

A young Lady complained of sore throat. The symptoms were those of cynanche pharyngæa. An emetic and purge were prescribed, and the next day she felt well. This was

delusive. On the third day she complained of pain just below the larynx, coughed a little, and lost her voice; she also felt pain down the middle of the back. The eyes were dull and watery, the skin hot, and the pulse sharp, and 120 in a minute. The nature of the case could not be mistaken. She was instantly bled to syncope; leeches were applied, and the antiphlogistic regimen enforced. She speedily recovered.

Inflammation of the bronchiæ in the first stages constitutes the peripneumonia notha and catarrhus gravior of nosologists. In this period it is readily curable by free depletion, and the antiphlogistic regimen. In a more advanced stage it is the catarrhal phthisis of Duncan;* a most untractable disease when carelessly managed, but with due attention is easy of cure. —moderate venesection, leeches, blisters, gentle purges, and digitalis are the remedies; but without minute attention to temperature and diet they will prove abortive. In numerous

* Duncan on Phthisis, p. 1.

instances* I have known a slight variation of temperature, or error in diet renew the disease, when the patient was on the verge of recovery. It is unnecessary to adduce examples of a disease so common.

* See the Case of Inflammation of the Pericardium.

CASES WITH DISSECTIONS.

"It is by the researches (anatomical) of those that have pre-
"ceded us, that the diagnosis of some internal diseases is now
"nearly, if not quite, perfected. It is our duty, and the duty
"of those who follow us, to continue this valuable labour,
"although it is too probable that we shall never complete it."

FARRE.

CONTRIBUTIONS

TO

MORBID ANATOMY.

I.

Diseases of the Head.

1. *Case of a Man of Letters who died of Apoplexy.*

W. G. was in the thirty-second year of his age, when he had a fatal stroke of apoplexy. He had been a hard student, and was a pale sickly looking man; but his complexion was originally sanguine. Four years before the seizure which proved fatal he had premonitory symptoms, and was saved by a free bleeding. His habits of life were extremely temperate, but ever since he had constant dyspepsia, sick head-ache, and frequent palpitations of the heart. After the attack he was insensible, and the right side was paralytic.

DISSECTION.

The scalp and membranes of the brain were bloodless. On paring down the cerebrum, the right side was beautifully white, and formed a contrast to the left, which was extremely vascular, and, owing to the rapid oozing of arterious blood from innumerable points, of a bright vermillion colour.

The right ventricle was full of serum, the left of clotted blood, which had torn down the substance of the brain near the ventricle. On removing it, the morbid condition of the finer arteries was apparent; they were enlarged, and the several ramifications looked like streaks of black silk or worsted. The infundibulum and third ventricle were also full of blood.

The heart was firm, but larger than usual.

All the other viscera were sound.

2. *Case of a Woman who died of Apoplexy.*

A. H., a countrywoman, had a fit of apoplexy. She was naturally robust and sanguine, but for

some months had an earthy unnatural complexion; was dispirited, and complained of sick head-ache. Four years before this seizure she had a violent inflammatory fever, with pain in the epigastrium, which yielded to copious bleeding and the antiphlogistic regimen. It was succeeded by symptoms allied to mania. Though free from fever, she talked incessantly, and never slept, but wandered about all night. Her manner was forward and immodest, and the powers of her mind were wonderfully excited. She was prompt in her replies, positive in all her opinions, and on all subjects employed a copious eloquence. Her long sentences were stored with lofty images; and though she frequently pursued new trains of thought before she came to a period, it was curious to observe how happily she disposed of them, and returned to the point from which she had diverged, to conclude the sentence. These symptoms yielded to free purging. After the attack she was insensible, and the right side was motionless; but she frequently lifted the left hand to her head, and the leg of the same side was violently

moved. The power of swallowing was gone, but the sphincters were closed. Free bleeding from the external jugular vein had no effect, and she survived the attack only twenty-four hours.

DISSECTION.

The dura mater adhered firmly to the cranium.

The finer membranes were manifestly inflamed. Between them there was an extensive effusion of bloody lymph, which reddened the surface of the cerebrum.

As was suspected, the greatest mischief was on the left side of the brain, the anterior half of which was most completely injected with blood. A large coagulum, which had evidently proceeded from the rupture of innumerable diseased vessels, filled the left ventricle, and had broken down the thalamus nervi optici of that side, and the corpus striatum.

There was serum in all the other ventricles.

The cerebellum was surrounded by water: its surface was deeply inflamed, and in its substance there were many apoplectic cells.

The trunk was not examined.

REMARKS.

Between inflammation of the brain and apoplexy, provided we take in the whole disease, there is no essential difference. The former seldom confirms itself to that nosological description, but appears in various forms, and apoplexy is one of them. The symptoms which constitute pyrexia have ranked phrenitis with the plegmasiæ; and if the premonitory symptoms of apoplexy be carefully noted, its exclusion is unaccountable. The occurrence of fever after the fit has been remarked by all observers, and the other symptoms are analogous. It is needless to observe how pointedly the two cases just related illustrate and confirm the opinion.

3. *Dissection of a Case of general Paralysis.*

After the researches of Mr. Hunter and Dr. Fordyce, the inflammatory nature of palsy needs no illustration; but the following dissection is interesting in another point of view.

G. W., robust, fat, and plethoric, aged sixty-five, had been an invalid many years. The prominent symptoms were frequent cough, and dyspnœa, dejection of spirits, complete inactivity of mind, and weakness of the limbs; and some months before his death, the lower limbs were in a half paralysed state. In the last years of life his distresses were aggravated by dysury, and discharges of blood from the urethra; and, a little before his death, he had complete suppression of urine. The disease of the brain seemed to have originated in indolence and chagrin from the sudden loss of fortune. It is very remarkable, but he never complained of any painful sensations in the head.

DISSECTION.

1. The membranes of the brain were deeply inflamed, and the cerebrum and cerebellum were in a state of extreme congestion. Between the dura and pia mater there was a great effusion of serum; as also at the basis of the brain. And in the spinal canal. The ventricles were

full of water. Altogether four ounces of serum were obtained from the cavity of the cranium. The plexus choroides was distended and cellular.

2. The heart was remarkably small, soft, and of slender texture. The venous systems of the lungs and liver were engorged, but there was no extravasation of blood.

3. The veins at the neck of the bladder were overcharged, and the middle lobe of the prostrate greatly enlarged.

There were evident marks of injury done to the urethra, by fruitless attempts to introduce the catheter. His medical attendant was unacquainted with the long catheter recommended by Mr. Astley Cooper, one of the most important inventions of modern surgery; his own were all too short to pass over the enlarged portion of the prostrate, and after fruitless attempts, his patient died without having obtained relief.

4. *Case of an Idiot who died of Phrenitis.*

G. W., aged forty, a little deformed man, large headed and idiotic, died after an illness of six weeks duration. The first symptoms were pain in the epigastrium, jaundice and fever. The jaundice disappeared in a fortnight, and he began to complain of violent cramps in the muscles of the chest, and of vertigo. He hesitated in his speech, and, from loss of memory, when he had begun a sentence could not finish it. His tongue was dry and glossy, and, from a contraction of the forehead, his aspect was fierce. He still could eat as well as usual. Emaciation followed. The cuticle peeled off in large masses, so that he literally appeared as though covered with rags. Twenty-four hours before his death he was furiously delirious, and then comatose.

DISSECTION.

The skull was surprisingly thick.

The finer membranes of the brain exhibited

marks of inflammation, and serum and coagulable lymph were effused between them.

The medulla of the brain was uncommonly hard, and bloody points were most abundant.

The cerebellum had the same characters.

The choroid plexus was gorged with blood.

The ventricles were full of serum, and a large quantity was deposited at the basis of the brain, and in the spinal canal.

The viscera of the trunk were sound.

II.

Diseases of the Chest.

1. *Case of singular enlargement of the Heart from Rheumatism.*

R. N. forty-five years of age, and of the sanguine temperament, was naturally stout and athletic, but for many years had been lean, sallow, and decrepid. He had a stiff neck, and his spine was gibbous; changes in his personal appearance which originated partly in habits of intemperance, and partly from repeated attacks of rheumatic fever. He had the first attack of acute rheumatism eighteen years ago. It was treated without evacuations, and was consequently tedious, and left a predisposition to the disease, one or two severe and protracted attacks of which he had every two or three years; and, after he was thirty, he had all the signs of a shattered constitution. He also had pleuritic symptoms twice or thrice, within

the last three years. When free from these diseases, Mr. N. enjoyed tolerable health, had a good appetite, was regular in his bowels and breathed well. The only circumstance he remembered was a disposition to perspire profusely, and an intermission of the pulse had been observed several years.

Mr. N. reached home on the 10th of June 1816. He had been one month in London; during which time, he was without appetite, had frequent fits of breathlessness upon any exertion, and nightly orthopnæa. Nausea and vomiting succeeded; he became feverish and had a continual thirst.

The present symptoms in addition to the shattered appearance already mentioned, were an œdematous swelling of the feet and ankles, a variable complexion, sometimes sallow, sometimes flushed. The urine was scanty, cloudy, and deposited a pink coloured sediment. When at rest, his respiration was easy; but whenever he moved, and sometimes without any obvious cause, it was high, quick, and oppressed. The pulse was 100 in a minute, irregular and inter-

mitting: and, during the fit of dyspnœa, always counted 120. He complained of oppression and flatulence of stomach, dosed during the day, but passed tolerably quiet though sleepless nights, was thirsty, and had but little appetite for food. The case appeared to be hydrothorax, with a rheumatic enlargement of the heart.

Squill, in combination with pil. hydrargyri, produced no diuretic effect; and, as it caused excessive nausea, it was soon discontinued. The tranquillity of the stomach was restored, but the disorder of the chest increased; and towards the close of June, the nights became restless. If my patient slept, he had a frightful dream, and a frequent sense of suffocation compelled him to quit the horizontal posture. The digitalis was next used, in union with the tincture of squill, and the ætherial spirit of nitre, and with considerable effect, but it soon ceased to act, and at the end of July, the swelling rose above the calves, and all the other symptoms were aggravated. In August, the water had reached the fore-skin of the penis, and medicines had no effect.

Colchicum, broom, and pyrola were tried; but they were quite inert. Ascites now appeared, and increased the whole of the following month; and, it is worthy of remark, the symptoms of hydrothorax were proportionably relieved. His physician had recourse to cantharides and nitric acid; but, by producing over excitement, they certainly did harm. In October, the legs were scarified, and gentle purges recommended. At first, these measures gave relief; but the most alarming debility ensued, and early in December he was apparently in articulo mortis. The hands were blue and œdematous; there was no pulse at the wrist; the countenance was shrunk, and covered with a cold sweat. He gasped for breath, had protruded eyes, and a mortal inquietude. Æther, brandy, and ammonia, in large, alternate, and quickly successive doses, gradually restored the powers of life. The quantities of stimuli were, of course, diminished, and the intervals of exhibition lengthened as strength returned; and it is worthy of remark, our patient voided twice the quantity of urine he had ever made at any

period of his disease. Indeed, it was delightful to see him awake, as it were, from the slumber of death, to a state of health compatible with the ruined condition of his vital organs. Life was prolonged three weeks longer by cordials, of which the chief was Cayenne pepper. At length they ceased to act. On the 22d of the month, a severe pain in the head warned us of effusion in the brain; his sensations were afterwards benumbed; one eye was distorted; and the following day he died.

DISSECTION.

The emaciation was extreme. There had been some gangrene about the sacrum from pressure. Petechiæ were visible here and there. As might be expected, the absorbents of the thighs were greatly enlarged.

We found fluid in all the cavities; blood and lymph between the membranes of the brain, and a little water, but no distension of the ventricles. In the cavity of the thorax and pericardium was much serum, and the abdomen contained a great deal of yellow water.

With the exception of the membranes of the brain, all the serous membranes exhibited marks of inflammation. The right lung adhered by an immense deposit of coagulable lymph to the pleura costalis. The concave surface of the liver was adherent to the stomach; the omentum, or rather its shrivelled remains, to the peritoneum; and the exterior tunic of the small intestines was universally inflamed.

With the exception of the stomach, the interior of which was covered with an erythematous redness, the mucous membranes were not diseased.

The brain was certainly without inflammation, but was firm in its texture. The same may be observed of the cerebellum. There was great passive enlargement of the heart; it was pale, flabby, and of a rotten texture. The natural condition of the ventricles was reversed; the cavity of the left was larger than that of the right, and the walls of the right very considerably thicker than those of the left. The corpora sesamoidea of the aortic valves were ossified; the coronary arteries were sound.

The lungs were amazingly congested, and rendered almost solid by extravasation in the cellular texture.

About the liver there was some question. It was not enlarged, but the speckled appearance of its interior led me to suspect disease.

The cartilages of the ribs were ossified.

REMARKS.

The connection between acute rheumatism and enlargement of the heart was, I believe, first observed by David Dundas, Esq. and his observations are published in the Medico-Chirurgical Transactions.* The case just narrated is another illustration, and is chiefly interesting from the reversed condition of the ventricles; the left being thin and flabby, and the right thick and muscular. This condition of the heart explains very satisfactorily the state of Mr. N.'s system for many years—pulmonary congestion, and a deficient supply of blood to the rest of the body; and was, of course, co-

* Vide Med. Chirurg. Trans. Vol. I. p. 37.

existent with the irregular and intermittent pulse which had been observed many years. It was painful to witness, in this case, the ravages effected in the muscular system by rheumatism. The great curvature of the spine denoted its fearful extent.

That dropsy is an inflammation of the serous membranes, is a doctrine which has been long established by anatomical observation, and is now very generally admitted. Dr. Baillie has remarked, "that water is found in the chest, when there are considerable adhesions. This shews that a good deal of inflammation had formerly taken place, which had probably, by throwing out a considerable quantity of serum, laid the foundation of the hydrothorax."* In this case, the inflammation had manifestly extended to all the serous membranes.

* Vide Baillie's Morbid Anatomy, p. 60.

2. *Case of Luxation of the Ribs from enlargement of the Heart in tubercular Phthisis.*

Mr. T. W. was in the inflammatory stage of tubercular phthisis, when he consulted me, in May 1817. He was in the twentieth year of his age, tall and delicate. His chest was narrow, his shoulders alated, and he had the external signs of scrophula in its most exquisite form. Traces of its ravages remained in his neck. The last six months he had been out of health, languid, bilious, and he had been subject to severe head-aches. He had also frequent palpitations of the heart, very distinct. He could hear the heart beat against the ribs, and was sensible of a frequent intermission of its pulsations. There was a corresponding intermission of the pulse at the wrist. During the preceding month he had frequent attacks of pulmonary inflammation, and noticed one morning a protrusion of the ribs in the cardiac region. They were separated from the sternum, and projected considerably. After this event, his heart beat

with more regularity, and he had less headache. The first week of my attendance he had two attacks of hæmoptysis, and felt pain in the right side, a little below the clavicle. Flushing of the cheeks and burning palms followed; and a regular hectic, with cough, and puriform expectoration, was established. The lancet was freely used: the cough was relieved, but it never entirely left him; the violent action of the heart ceased, and the ribs returned to their natural situation; but hectic fever continued, and his emaciation increased until he died, which event took place in the middle of December. Much relief was found in the last stage from ætherial vapours; and when his mouth became apthous, he subsisted almost entirely on rose and distilled water.

DISSECTION.

The third, fourth, fifth, and sixth ribs were found separated from the sternum, and a little elevated.

The heart was very small, contrary to expectation. It was empty of blood, and the right

auricle and ventricle were thin and flaccid. The foramen ovale was not entirely closed. There were traces of inflammation of the aorta.

The superior lobe of the right lung adhered to the chest, and formed a large bag, containing pus. Except the left inferior lobe, which was tolerably sound, the remainder of the lungs was a solid mass of tubercle. There was serum in both sides of the chest. All the mesenteric glands were enlarged.

In this case there was evidently passive aneurism of the right chamber of the heart from pulmonary infarction, which free depletion had relieved. The patient died of genuine pulmonary consumption.

3. *A Case of Angina Pectoris.*

Mr. I., formerly a butcher, aged sixty-two, of a robust habit, and sanguine temperament, has sometimes had symptoms of angina pectoris. He is looking extremely pale. When he walks, a violent pain arises in the middle of the sternum, crosses the breast, and runs down

each arm; the shoulders feel as though loosened from their sockets, and he is compelled to stop instantly. A vomiting sometimes succeeds. The complaint frequently comes on in the night time. When he sits still, he feels no disorder.

The pulse is above 100, soft, and intermits every fifth or sixth pulsation.

He was bled three times, and the blood was sizy.

He died suddenly, while in the act of giving some direction to his servant rather hastily.

DISSECTION.

The pericardium and the heart were thickly covered with fat. Both the coronary arteries were ossified, and in some places become mere capillary tubes. The morbid process extended to the smallest ramifications. The heart itself was pale and flabby, and soft, like boiled beef. The mitral valves were altered by disease, as were the semilunar valves of the aorta. The aorta itself exhibited marks of inflammation. There were no adhesions in the chest, and the lungs were sound.

In his excellent work on Nosology, Mr. Mason Good describes two species of angina pectoris, which he calls "sternalgia ambulantium" and "sternalgia chronica." The symptoms of the first species correspond with those of the case just related. From the cases that have occurred to him, he concludes, "that the respiratory organs are the seat of the first species, and some affection of the heart of the second species."* The dissection of Mr. I. contradicts this opinion.

* Vide Good's Nosology, p. 113.

III.

Diseases of the Abdomen.

1. *Case of obliteration of the Cystic Duct, and Ulceration and Adhesion of the Duodenum, terminating in inflammation, from Gallstones.*

I was invited by my friend Mr. Jackson, to be present at the dissection of W. R. a weaver, a short robust man, forty-five years of age. He had been an invalid the last fourteen years of his life, and had consulted several medical men, myself among the number. All agreed that his complaints originated in gallstones. His skin had always a slight bilious tinge, and he had every now and then paroxysms of acute pain in the epigastrium extending a little to the right side. The pain produced cold sweats, but no acceleration of pulse. His stools, on these occasions, were white or clayey, his urine bilious, and he was sometimes jaundiced.

Opium alone seemed to mitigate the pain. He voided several large gallstones by stool.

Before the seizure which terminated in death, he had complained several days of slight feelings of pain in the stomach, but was on that day better, and more than usually cheerful. Towards evening, however, while at a neighbour's house, the pain seized him, and was most excruciating; large drops of sweat ran down his face, he was heard to say, this attack differed from any he had ever experienced, and that he should not recover. Medical assistance was procured. The next morning the pain was found to have diffused itself over the whole abdomen, which was so tender, that the weight of a blister was intolerable. Fever now manifested itself: the skin was hot and dry, the tongue white, with a brown streak in the middle; the urine red, and the pulse 132 in a minute. As he lay bolstered up in bed, he presented a pitiable spectacle. He breathed short and quick, and his countenance was the image of distress. His chief anxiety was to keep the trunk immoveable. He was costive, and

vomited frequently. The next day signs of collapse appeared; and, early the following morning he expired.

DISSECTION.

The peritoneum, omentum and external tunic of the small intestines were intensely inflamed; and serum and coagulable lymph were deposited in the cavity of the abdomen.

The mucous membrane of the stomach was erythematous. The duodenum adhered to the concave surface of the liver, separating this adhesion, two circular apertures, the remains of two ulcers, now healed, appeared. The larger of the two was about half an inch in diameter.

The cystic duct was diseased, and almost obliterated. Air could be forced by the blow-pipe, but the bile could not pass. The bile was black and of the consistence of an extract.

The spleen was pale and shrivelled.

2 *Case of schirrous Pancreas.*

In his valuable work on Diseases of the Abdominal Viscera, Dr. Pemberton says in schirrous pancreas, " there is deep-seated pain in the region of the stomach, and more or less of sickness, with emaciation." On this last symptom he observes, " the body is often reduced to the utmost state of emaciation, and the integuments of the abdomen appear almost to rest upon the spine." To the general accuracy of this description, the following case will bear testimony. The pain was not subduing as in spasm, but gave rise to the most frantic expressions and gesticulations; and the sickness, when once established, was constant. Nothing remained on the stomach. This symptom probably did not occur until the mucous membrane of the stomach was become erythematous.

Mrs. C. an unmarried lady, sixty-seven years of age, of a dark complexion, complained of continual pain in the epigastric region, which extended to the left hypochondrium. Deep pressure increased the pain, and there was a

remarkable pulsation below the cartilages of the false ribs, on the left side. She was a good deal emaciated, but without fever; the bowels generally costive. Her appetite was bad; but she had no sickness or vomiting. Her complexion was sallow, and her eyes had a peculiar expression of anxiety. The pain was sometimes most intense, and on these occasions she exhibited signs of distraction. Her body was agitated in a most extraordinary manner; she tore the bed clothes, and said she could tear the flesh from her bones. Large doses of laudanum afforded some relief. Six weeks before her death, a vomiting came on. Every thing she swallowed was rejected, and sometimes a little bile and mucus. Nothing appeared to relieve this distressing symptom, and after six weeks of extreme misery she died.

DISSECTION.

The cadaver was extremely emaciated. The spine could be distinctly traced through the parietes of the belly.

The stomach was erythematous.

The pancreas had the usual marks of schirrous; and the splenic artery was imbedded in schirrous matter.

A small tubercle was found in the parietes of the uterus, and the germ of a polypus in its cavity. All the other viscera were sound.

3 *Case of Fungus Hæmatodes of the Kidney.*

I dissected E. W. an old woman, in the presence of Dr. Hull, Mr. Chalmers, and my brother. There was an immense tumour, extending from under the ribs of the right side to the pelvis, and occupying two thirds of the cavity of the abdomen. The disease of which she died was supposed to be an enlargement of the liver.

The cellular texture on the surface of the belly was loaded with fat, but the rest of the body was in a state of great emaciation. The tumour when exposed, was an enormous unshapely mass, to which the small intestines were adherent. Having separated it from these adhesions, we found it also adhered to the

concave surface of the liver; and on further examination, it proved to be the right kidney. It weighed eight pounds. The exterior investment exhibited marks of inflammation; and underneath it were several collections of pus. Cutting it in two the interior resembled diseased brain. Urine flowed from it and here and there were extravasated blood, and portions of coagulable lymph, like polypi or worms.

The coats of the bladder were thickened, and exhibited the same morbid appearance.

The other kidney weighed only four ounces, and contained a small calculus.

There were marks of inflammation on the peritoneal surface of the small intestines in various places.

HISTORY OF THE CASE.

This patient had nepritic complaints twenty years, and frequent discharges of bloody urine. She was attended by my friend Dr. Hull three years ago; and in addition to the discharge of blood, had great pain and difficulty of making water; fever, and constant pain in the loins.

The last attack he witnessed, was unusually severe. The dysury was attended with the most excruciating pain in the region of the bladder, and she eventually voided a substance which she supposed to be a worm, but which was probably a portion of coagulable lymph, such as we found in the kidney. This would plug up the miatus urinarius, and the morbid state of the bladder accounts for the pain, she felt in the efforts of micturition. A month before she died, she became my patient for the first time, and had, besides the tumour which was painful, the usual signs of fever. Bleeding relieved the pain. The subsequent treatment was entirely palliative. Emaciation and debility increased rapidly, and she died. This disease is well described by Bichát.*

"L'induration des reins n'est pas toujours une suite de leur inflammation: elle vient aussi par un engorgement chronique, qui peut être de différentes espèces. Ces viscères augmentent de grosseur, et acquièrent quelquefois un vo-

* Vide Œuvres Chirurgicales de P. T. Dessault, par Xav. Bichát, Tome XVII. p. 33.

lume énorme; on les a vus remplir presque toute la capacité du bas ventre. Ils sont tantôt mous, et contiennent un assemblage de petites hydatides, des poches pleines d'urine, de pus, de matière stéatomateuse, &c. d'autres fois, ils sont durs et squirrheux. Dans ces derniers cas la suppression d'urine n'arrive que par degrés; et même quand il n'y a qu'un rein d'affecte, on n'appercoit souvent aucune diminution dans la sécrétion, et la maladie existe sans être annoncée par aucun signe: il n'y a ni fièvre, ni douleur, ni chaleur dans la region des reins; quelquefois les malades éprouvent seulement de la gêne, et se plaignent d'un sentiment de pesanteur dans cette partie, lorsque l'engorgement est considerable, et la tumeur volumineuse, les filets antérieurs des nerfs des premières paires lombaires en sont comprimés; l'engourdissement a l'aine et à la partie antérieure de la cuisse du mème côté, augmente quelquefois, au point d'empècher les malades de marcher."

SURGICAL OBSERVATIONS.

SURGICAL OBSERVATIONS.

ON

CONTRACTIONS OF THE NECK.

In a valuable paper published in the Medico-Chirurgical Transactions,* Mr. Earle reprobates in an unqualified manner the division of the cicatrix, which causes the contractions that remain after extensive burns. In many cases the method of dissection proposed by Mr. Earle is decidedly superior to the old operation of division. There are cases, however, in which it cannot be employed; in the neck, for example, and the results of the two following cases prove, that a modification of the old operation of division may be practised with success.

* Med. Chir. Trans. Vol. V. p. 97.

CASE I.

The operation performed in this case was done before the publication of Mr. Earle's paper otherwise the opinion of so competent a judge would probably have prevented it. The patient, a little girl about nine years old, had been severely burnt in the throat, face, and breast, a year before, and the case had been much neglected and mismanaged. The cicatrix involved the lower part of the face, the whole front of the neck, and breast; and as no attention had been paid during the cure to position, the chin adhered to the sternum. The distance between them was scarcely the third of an inch, and the intervening substance, into which the tissues covering the front of the throat was converted, consisted of a substance like gristle. The effect of this contraction will be more readily conceived than described. The head immoveably fixed, the shoulders elevated towards the ears, the lower lip depressed, so as permanently to expose the lower teeth and gums; and the cheeks drawn downward in such a

manner as to evert the lower eye-lids, rendered a very pretty, and interesting little girl, a perfect picture of ugliness. Conscious of her deformity the child seconded the wishes of her parents, and I was induced to attempt an operation for her relief.

Placed upon a table, an incision was made through the cicatrix, half an inch deep, and about four inches in length. The incision was then extended cautiously at each end, and the dissection continued towards the throat as far as was deemed prudent. The hæmorrhage was not considerable, two or three small arteries were wounded, but they were secured by the ligature. A space, about an inch and a half broad, was the immediate result, and this was almost all the advantage we expected from the operation. She was next put to bed, and pillows disposed under the neck, in such a way that the chest was fixed, and the head thrown backward. The effects of this position were inconceivable, and when the wound was opened, we had the satisfaction to find that there was a space of three or four inches, between the

chin and breast. Thus encouraged, the position was continued, and in a few days there was a complete restoration of the lost space, in the front of the throat. The eye-lids and lower lip had resumed their natural position; there was an entire chin, the healing process had commenced, and every thing promised a fortunate result. It is proper to observe, that for several dressings, it was found necessary to extend the wound at each end. This was done by caustic (argentum nitratum,) as the child could not endure the sight of a cutting instrument.

As soon as the progress of cicatrization admitted its use, a collar, narrow at first, and made of unyielding materials, was placed round the neck, to obviate contraction, the natural effect of cicatrization. One still deeper was substituted every three or four days. By this means the cicatrix was torn open afresh, generally in the middle; but this was not regarded as an evil, for although a sore two or three inches long was the consequence, yet the rest of the cicatrix remained firm, and the com-

plete space between the chin and breast preserved. The cure was retarded, but this was a trifling evil; and sometimes when there was a rupture of the cicatrix, it was even extended by the caustic. In this manner, alternately gaining and losing space, destroying and healing, for three months, the wound was at length perfectly healed. Contraction seemed to have run its course, and the cure was complete. A wide collar was ordered to be perseveringly worn; and at this time, five years since the operation was performed, the cure remains perfect. After the wound was healed, with the exception of some slight scars about the face, our little patient was without deformity, and had the perfect use of her neck.

CASE II.

The success of the preceding case procured me another. This was in the child of a poor person. In its general features it bore a close resemblance to the case just described; only they were greatly exaggerated. The face had suffered more; the shoulders almost touched

the ears; and the collar bones were nearly dislocated; in addition to which, a contraction like a leathern thong held the fore-arm at an acute angle with the arm.

As far as the throat was concerned, the operation in this case was also more formidable. A greater number of vessels were wounded, and the external jugular veins being massed in the cicatrix, were both divided. The progress of the cure was frequently interrupted by sloughing, and the discharge was excessive. Nevertheless, after five months attention, both to the wound and the constitution of the patient, it was completed.

Upon the arm, the operation described by Mr. Earle was performed, and succeeded admirably.

CASE III.

Contraction of the Sterno-cleido-mastoideus Muscle.

A not unfrequent effect of scarlet fever is a disease of the sterno-cleido mastoideus muscle. A fasciculus of muscular fibres is converted

into a substance like cartilage. This conversion produces a permanent contraction of that portion of muscle, and the remainder of it is in effect contracted; by which means the head is drawn awry. Other evils naturally follow. The attempt to keep the head erect causes a semi-luxation of the clavicle, and a consequent pain and weakness of the arm on the affected side.* Winslow, in an essay of his published at Paris, objects to any operation on the muscle on the side of the neck towards which the head reclines, being persuaded that the mastoid muscle on that side is sound, but the other paralytic. But the observations of Haller disprove the theory of Winslow; and the following case corroborates the opinion of the great German anatomist, while it shews that an operation may be performed on the muscle with success.

A stout, rather short-set young woman applied to me, Sept. 18, 1817, on account of a contraction of the left side of the neck, which followed an attack of scarlet fever, and under

* Haller's Pathological Observations, p. 8.

which she had laboured many years. The neighbouring parts had of late been painful, and the right arm was useless. She evidently exerted herself to maintain the head erect, in order to conceal her defect; and the consequence was a semi-luxated state of the sterno-clavicular articulation, which was also inflamed. To this cause the pain and weakness of the arm may be ascribed. The contraction appeared to increase.

On examination, I found a fasciculus of the fibres on the outside of the clavicular portion of the sterno-cleido-mastoideus muscle, about an inch broad, indurated, and the whole muscle shortened. The sternal portion was not affected. There was no reason why an operation should not be performed in order to relieve her; on the contrary, the effects of the contraction upon the neighbouring articulations imperiously demanded it, and the patient was anxious to have it done.

The operation was performed in the manner described by Mr. Charles Bell,* and was more

* Charles Bell's Operative Surgery.

embarrassing than I expected. A vertical incision was made over the clavicular portion of the muscle, three or four inches long, through the skin, platysma myoides, and fascia; but as the neck was short and fat, it was impossible, without very considerably enlarging the incision, to expose the muscle. By this means the external jugular vein was divided, and secured by ligature. The diseased portion of muscle was then removed, and resembled cartilage. A directory being with some difficulty passed behind the remainder of the muscle, it was divided; and in order to prevent reunion, an inch of it was removed. Many small arteries were divided, but they were secured without difficulty.

Whether it was that the divided vein inflamed, or inflammation arose from the injury inflicted by the directory, is uncertain. On the third day, however, there was intense pain in the wound, which affected the brain and heart. The pulse intermitted, the most dreadful irritability of nerves attended, and the case was altogether alarming. Bleeding was had re-

course to, and means to forward suppuration were applied to the wound. After two days this process was established, and a copious discharge relieved the pain. Afterwards the cure went on well, and by the help of a collar, as in the preceding cases, the cure was completed.

REMARKS.

An improvement in this operation in a fat and short-necked subject would be, after the vertical incision, to draw the knife a few inches over the clavicle. The flaps being then dissected back, the muscle would be more fully exposed, and the subsequent stages of the operation facilitated.

ON DISEASES

OF THE

Sublingual and Submaxillary Glands.

An obstruction of the termination of one of the sublingual salivary ducts distends the duct, and occasions a semipellucid tumour of the chronic kind, which is called ranula. This disease is generally obvious and manageable. A number of interesting cases are related by Le Dran,* Wilmer,† Dessault,‡ Bell,‖ and Burns.§ But inflammation of these parts is not described, and we are left in the dark, as to the proper treatment of the succeeding stage of suppuration. In this point of view the following case is interesting.

* Le Dran's Surgery, p. 15.
† Wilmer's Surgery, p. 75.
‡ Dessault Æuvres Chir. par. Bichat, tom. 2. p. 216.
‖ Bell's Principles of Surgery, p. 236.
§ Burns' Surgical Anatomy of the Head and Neck.

I saw Mr. R., March 1820, a stout young man of a florid complexion. He exhibited no marks of scrophula, but that disease had shewn itself in other members of the family. He had caught a severe cold about a week before, which was followed by a sudden and intense inflammation of one of the sublingual glands. He was in severe pain, and swallowed with difficulty. These were the appearances. The membrane of the mouth under the left side of the tongue was intensely red, and somewhat swollen. The tongue was also raised, in a slight degree out of its natural situation. Under the chin, and between it and the larynx, on the left side, was a tumour as hard as stone: occupying the whole space, and somewhat prominent. The skin was not red. The patient had the usual symptoms of inflammatory fever.

Although the lapse of several days almost destroyed the hope of effecting resolution, yet suppuration was far distant, and the means employed for the reduction of inflammation were calculated to limit the extent of the suppurative process. I therefore had recourse to

one bleeding from the arm, and ordered relays of leeches to be applied to the tumor beneath the jaw. The usual antiphlogistic measures were also had recourse to. Considerable abatement of pain and fever were the effects of these means, but the local affection was unaltered; and in a few days it was clear that suppuration was established. This change in the nature of the disease was met with a corresponding change of measures, and I waited not without impatience for the appearance of abscess, either beneath the tongue or under the jaw, in order that an incision might be made, and the patient relieved; as well from the danger that impended the parts concerned in the suppuration, as the risk of suffocation, which the increased pressure upon the larynx threatened. Already, swallowing was impeded, and the irritation of the trachæa entirely prevented sleep. About the end of the second week, a small abscess burst beneath the tongue, and relieved the mouth considerably, but the tumour beneath the jaw was increased; and there was an increase of the symptoms dependant on its mechanical

pressure upon the larynx. Before the end of the third week, the skin acquired a blush of redness, and a slight fluctuation could be felt with the finger. No time was lost; an abscess lancet was plunged deep into the submaxillary tumour. The instrument penetrated to the depth of an inch, and when it was withdrawn, the point was covered with pus. None however followed, and though I deepened and enlarged the wound, I could not evacuate the contents of the tumour. There was a free discharge of pus the next day, and the tumour was considerably diminished. Under the tongue also there was an oozing of matter. This induced me to enlarge the opening in that situation; and as the contraction of the integuments had diminished the wound under the chin, this was enlarged also.

Every thing went on well another week; at the end of which the wound beneath the chin was nearly closed, and there was an incipient abscess below the angle of the jaw. This was opened, but it closed again in a day or two, and the matter approached the front of the

throat, where it is uncovered with the cutaneous muscle, and was there discharged. During the suppurative stage, the patient's strength was supported by bark and nourishing food.

REMARKS.

Had the disease in this case been confined to the sublingual gland, the mylohyoideus muscle would have prevented any protrusion beneath the jaw: and the same cause would have prevented a mere enlargement of the submaxillary gland from encroaching on the space below the tongue. Both glands were evidently the seat of disease. The necessity of prompt and free incisions in deep-seated suppurations, in which the natural determination of matter to the surface is impeded by muscular coverings, does not admit of question. But in this case the interposition of the mylohyoideus muscle converted, as far as the treatment was concerned, one disease into two ; and each required a separate operation. It is obvious, that an incision beneath the tongue could have afforded no relief to the matter which was pent up

beneath the jaw, and vice versa. In the treatment of diseases of these parts this circumstance should always be kept in view.

CASE II.

I am indebted for the following instructive case, to my friend Mr. Brereton.

March 16, 1820, John Wray, an extremely stout, healthful looking farmer's servant, aged twenty-one years, called upon me on account of a violent pain in the region of the lower jaw, of the left side, which he imagined to be the tooth-ache. There was considerable tumefaction of the cheek, and the submaxillary glands of that side were a good deal enlarged. Pyrexia accompanied the disease.

On examining the teeth, I could not discover anything to justify the man's conclusion relative to the cause of the complaint.

I took twenty ounces of blood from the arm, let him have an active purgative (the pulv. jal. C.) which I bade him repeat for three successive mornings, and ordered him to use hot fomenta-

tions, and apply poultices of linseed powder to the part affected.

On the 22d, Wray again visited me. The pain and swelling had, in some measure subsided, and the symptomatic fever was less urgent. He was directed to take an infusion of senna with Epsom salts, to persevere in the use of poultices &c., and to continue an antiphlogistic regimen.

I saw him in the country, four days afterwards, (the 26th,) and found every symptom much aggravated: He attributed this to being exposed to the cold during his return from my house on the 22d.

Now, the swelling was such, that, the left eye was quite closed: the face and neck formed a continued plane; the jaw was locked; deglutition was performed with the greatest difficulty, the face was livid, and the vessels of the adnata of the right eye turgid with blood. His aspect was truly frightful; and the singular crowing or rather grunting sound, which was elicited when he attempted to articulate, did not a little add to the alarm which his appearance excited,

particularly amongst his fellow-servants. Delirium was occasionally present, and the pulse, which was full and jarring, beat 140 strokes in the minute.

On close inspection, I observed, that the swelling was the most protuberant under the chin; and at that part, pressure evidently gave him more pain than when applied elsewhere. I thought too, I could distinguish a sensation as though pus were really formed there. Thirty ounces of blood were immediately drawn; an opiate, combined with antimonial powder, and a large dose of calomel, was administered, and ordered to be repeated according to circumstances; and the warm applications desired to be employed with increased vigour. I ventured to promise him relief on the morrow, for then I conceived an attempt to open the abscess, might be successfully made.

When I saw him, in the morning, he was much better, the severity of each symptom was alleviated, and his general appearance greatly improved. He said that, he " got ease as soon as he began to spit;" an observation which made

it not difficult to divine the cause of his amendment. On examination it proved, that the abscess, instead of proceeding to the surface externally, had by ulcerative absorption found an exit under the tongue. The pus might be seen oozing out of a small opening beyond the frænum linguæ.

It was plain that though relief was obtained, the cure might be protracted to an indefinite time, if a more dependent opening were not made for the matter to escape by: as it was, it required a little effort to pump the pus up, and the cyst or reservoir could not be entirely emptied. On this account an opening was made externally. About two ounces of very fetid pus were evacuated, which immediately put a stop to the unpleasant operation of getting rid of the discharge along with the saliva.

About a week afterwards on calling upon Wray again, I was mortified to find, that part of the matter, in spite of the precautions which I had directed to be employed for preventing such an occurrence, had insinuated itself at least three inches below the incision, that was

made to discharge it. The platysma myoides and integuments were detached, and formed a little bag on the left side of the trachæa, in which the pus was collected; in other respects the man was doing well; the fever was gone, and the features had nearly assumed their natural appearance. Of course it became necessary to discharge the matter thus accumulated by an opening made as low as possible, that it might drain off as fast as it was secreted. To accomplish this, and with an intention also of rousing a little inflammatory action in the parietes of the sac, an eyed probe, armed with cotton, and curved so as to adapt itself to the sinus, was introduced, and its point carried downwards to the utmost extent of the sac; it was then cut down upon, and the probe carried through the incision and separated from the cotton. The cotton was directed to be drawn forward in the manner of a seton each time the dressings were applied.

When I called upon my patient four days afterwards, I found him at plough. The seton had been withdrawn after remaining twenty-four

hours; adhesion between the sides of the abscess immediately followed; the discharge speedily ceased, and when I saw him, even the external wounds were cicatrized. In fact not a vestige of local disease remained, except considerable induration of the surrounding parts, and that I believe is still not quite removed.

Beverley, Sept. 10, 1820.

CASES OF HERNIA.

Now that English surgery boasts the production of such complete writings on the subject of Hernia as those of Hey, Cooper, and Lawrence, no apology can be offered for the publication of solitary cases, but their peculiarity. Every new case is worthy of record, as it may eventually lead to practical conclusions, not foreseen; and no case should be lost to the profession, which suggests any point immediately practical. In this respect the following cases will not be considered unimportant.

CASE I.

I. P., a poor woman, forty years of age, had an old femoral rupture, which occasionally descended, but which she was always able to return, until the 24th of September, 1816, when she found it irreducible. Pain, vomiting, and constipation succeeded, and I saw her the next day. These symptoms alone gave her concern, and I discovered the hernia in the course of my inquiries. It was evidently femoral; the tumour large, rising upward toward the belly, and widely spread. There were marks of great violence on the skin. The usual means were resorted to, but, together with the taxis, completely failed. I could not persuade the patient that her case was dangerous, and she peremptorily refused to submit to a surgical operation. She continued in the same disposition the two following days, during which every thing was done to prevail upon her to allow us to attempt reduction.

On the 28th there was evident sensorial disturbance. Her eyes glistened, she was quick

in her answers, and her conversation was incoherent and absurd. This was a favourable opportunity for the renewal of the taxis, but the attempt was ineffectual. During the operation the countenance fell, the lips became livid and convulsed, the eyes were inverted, foam issued from her mouth, and her whole frame was shaken by convulsions. This alarming state of things continued half an hour, when her senses returned.

On the evening of the 29th, the patient consented to the operation, which was performed immediately in the usual manner. The contents of the sac were chiefly omental, which in one place had contracted an adhesion to the sac; and underneath there was a coil of small intestine, almost black, and which was at the same time strangulated, and rendered irreducible by the protruded omentum.

The next day the patient had symptoms of peritonæal inflammation. It yielded to bleeding, leeches, and saline purgatives. The wound healed by the first intention.

REMARKS.

Large chronic herniæ are not always devoid of danger; as in this case a portion of intestine may descend along with the omentum, and the case, though apparently chronic, be really acute. The rule therefore which prescribes an early operation, after the failure of the taxis, is of universal application. The impossibility of reducing a portion of intestine when it is covered by omentum, and strangulated, is evident.

CASE II.

An old lady had a chronic femoral hernia, much larger than the preceding. It came down on the 10th of April, 1817, and she was unable to return it, as she usually had done. After fruitless trials, for sixteen hours, she desired my assistance. My attempts were equally unsuccessful, and, after a further delay of eighteen hours, she consented to the operation. This was performed in the usual manner. The anatomy of the parts was much altered; and after opening many sacculi, I at length reached

what appeared to be the sac, which, when opened, contained fluid. The arborescent appearance of the vessels, however, convinced me that the intestine was not yet exposed, and pinching up the membrane, it was almost transparent, and through it I could distinctly perceive a coil of intestine. In order to return it, after laying open the sac, it was necessary to divide Gimbernat's ligament. Although the protruded bowel was covered with black patches, the case did well.

REMARKS.

The operation, in this case, was rendered embarrassing by the circumstance of there being sac within sac. The arborescent disposition of the vessels in the peritonæum, and their circular distribution in the intestine, a distinction laid down by Mr. Abernethy in his lectures, will generally enable the surgeon to distinguish them. In this case the transparency of the sac, when pinched up by the forceps, removed all doubt by exposing its contents.

CASE III.

R. G. applied to me on account of an abscess in the right groin. He had been ill a fortnight before, and under the care of a young surgeon in Hull. From the history he gave, it appeared that a tumour arose in the groin, which was attended with pain in the belly, costiveness, and vomiting. No attempt was made to reduce the tumour, the nature of which had been misunderstood. Inflammation and suppuration succeeded, and the abscess burst. The patient was at first relieved, but the fæces afterwards issued from the wound, and the surrounding skin was excoriated. There could be no doubt as to the nature of the case, and I had no hopes of affording him effectual relief. A dressing composed of the unguentum oxydi zinci was applied to the excoriated surface, and, contrary to my expectation, under its use the wound granulated and closed. The patient has remained well ever since.

REMARKS.

The hernial tumour in this case was most probably composed of a portion of the caput coli. In a case of femoral hernia I saw operated upon in St. Bartholomew's Hospital, the usual symptoms of strangulation were occasioned by a mere protrusion of the appendix cæci vermiformis! Of spontaneous cures of this disease Mr. Hey* relates two cases; and it is remarkable they were both on the right side. This author also refers to a case in the Medical Observations and Enquiries, Vol. III. Art. 8.

* Hey's Surgery, p. 164.

ON HYDATID TUMOURS IN THE FEMALE MAMMÆ.

The constitutional nature of cancer is now firmly established, and the utmost a surgeon can promise his patient in performing exterpation, is a temporary relief from suffering. There are however tumours of the female breast, which to a superficial observer present the appearance of schirrus. These contain a fluid, are of an hydatid structure, and are distinguishable from schirrus by striking characters. In schirrus the skin has a dull leaden hue; in the hydatid tumour its complexion is natural. A peculiar uneasiness characterises the hardness of schirrus, but in the other disease, the tumor is smooth, and there is no more inequality than would naturally arise from the clustering of two or more hydatids. A schirrous tumour adheres to the skin, and gives it a puckered appearance, but in this disease the skin is

smooth. The following cases shew that these tumours may be safely extirpated.

CASE I.

A poor woman applied to me on account of a tumour in the left mammæ, which gave her great pain. It was about the size of a large egg, and was the growth of three years. She described the pain to be very acute, and that it deprived her of sleep. The tumour was as hard as stone, smooth, and moveable. The outer surface adhered a little to the skin, but, it was neither discoloured, nor puckered. There was no disease in the axilla. The appearance of the poor woman was wretched in the extreme, and she was anxions to have the tumour extirpated.

In the operation care was taken to remove a sufficient quantity of the surrounding integuments, and the wound healed by the first intention. The tumour on examination proved to be a cyst like an hydatid, and contained a limpid fluid.

A few days after the operation, an intense

fever set in, and the powers of life seemed unable to struggle with the disease. It was followed by a violent dysenteric purging, in which shreds of coagulable lymph were evacuated. The disease yielded to castor oil and neutral salts.

REMARKS.

Affections of the system not unfrequently follow great operations. The extreme prostration of strength, that frequently attends them, would seem to indicate the use of cordials; bnt a little time will convince the practitioner that he has to contend with an inflammatory affection, generally of the mucous membrane of the alimentary canal. In such cases Mr. Abernethy used to prescribe the blue-pill, neutral salts, and the antiphlogistic regimen. After an operation for aneurism of the femoral artery, the patient, a sweedish sailor, for a few days appeared to do well. Afterwards, such alarming prostration of strength came on, Mr. A. considered death inevitable. The patient was desponding in the extreme, and his pulse was

thready and vermicular. No cordials were used, but by the steady use of the simple means above mentioned, the secretions of the intestinal canal were restored, and the patient recovered.

CASE II.

An elderly lady had a tumour in the left breast, many years, which, until the last year, was without pain. It had then enlarged, so as to press upon the integuments, and give rise to inflammation. As she was sixty years old, it was hoped that by the occasional use of leeches and palliatives, she might be spared the pain of extirpation. The rapid growth of the tumour however, and the morbid condition of the soft parts, caused me to abandon this expectation, and she was willing to submit to an operation.

In its external characters the tumour bore some resemblance to schirrus, only it was moveable; the skin was reddened where it adhered to the tumour, but had not the peculiar complexion of schirrus.

There was no disease of the axilla.

In the operation care was taken to remove a sufficient quantity of the surrounding parts; and as the tumour was about the bigness of an orange, almost the whole breast was removed. The wound healed nearly by the first intention. Silk ligatures were used in order to secure the arteries, after the manner of Mr. Lawrence. An abscess formed in consequence on the upper part of the cicatrix, and the knots were discharged. Nothing sinister occurred afterwards, and the cure was soon accomplished. Many years have elapsed and there has been no return of disease. The general health of the patient was evidently improved by the removal of the tumour.

After the operation the tumour was examined. It was extremely hard, and as it shot out processes into the surrounding substance, it was thought to be a genuine schirrus. On dividing it, however, it proved to be a strong cyst, and contained a fluid of the color and consistence of bile.

CASE OF FRACTURED SKULL.

Injuries of the brain, from a fracture of the os frontis, are more frequently recovered from, than similar injuries from fracture of other parts of the cranium. It would be assuming the general truth of the theory of Messrs. Gall and Spurzheim, to pretend that the anterior lobes of the cerebrum are less important to animal life, than the other parts of the sensorium. Whatever share this may have in the production of a circumstance so singular, a more natural explanation presents itself in the comparative fewness of large vessels in the front of the brain and its membranes. The fatal nature of lateral injuries of the head, Mr. Abernethy * has shewn to depend on the rupture of the branches of the arteria meningœa media, and consequent effusion of blood upon the brain.

* Abernethy's Surgical Works, Vol. II. p. 36.

In the occiput the sinusses are almost sure to suffer from fracture; and at the basis of the brain, besides the impossibility of removing extravasated blood, the coagula may press on the origin of the visceral nerves. The following case is also interesting in a practical point of view.

CASE.

A slender lad, servant of Mr. Nicholson, of Bentley, August 4, 1817, endeavouring to catch a young horse, seized it by the tail, and received a blow upon the upper part of the forehead. A triangular portion of the os frontis was fairly detached, and driven deeply into the substance of the brain; the dura mater was lacerated to the extent of two inches, and some portions of brain were laid upon the edges of the wound. When I saw him he was comatose. The area of the lower table of the detached bone being considerably larger than the upper, it was necessary in order to remove it, to apply the trephine in one angle of the aperture in the cranium, and remove another segment of bone

by applying Mr. Hey's saw between the circle formed by the trephine, and the opposite angle. The wound of the scalp, which was horizontal, was lengthened at each end, and a vertical incision made in the direction of the sagittal suture. This enabled me to remove as much of the skull as was necessary, and the detached bone, buried deep in the substance of the brain, was extracted without difficulty. In order to counteract the action of the frontalis muscle, and prevent the exposure of the cranium from the descent of the depending portion of the scalp, the edges of the wound were brought together by two sutures, which were secured by slip knots.

The patient struggled violently during the operation, but was afterwards quiet and comatose. This was noon. In the afternoon the skin was very hot, and he was bled to syncope from the external jugular vein. I found him the following morning restless, and throwing about his arms with violence. The pulse was quicker than natural, but the skin was cool. There was evidently no inflammation,

but the irritation he laboured under arose from pressure upon the brain. The dressings being removed, the sutures untied, and the wound fairly exposed, about two ounces of coagulated blood, and cerebral matter, were removed from the brain. After the dressing, he became tranquil. The bleeding was repeated, and constant purging ordered to be kept up. In the evening he was much enfeebled, nevertheless the bleeding was repeated to syncope.

The next day, he was better in every respect, the pulse 90, and weak, and the wound looking well. The senses were completely restored. Afterwards nothing sinister occurred to retard the cure, which was complete in a few weeks. There was a good deal of exfoliation afterwards, and twelve months elapsed before the process was completed.

REMARKS.

The necessity of using sutures in transverse wounds of the forehead is the only apology that can be offered for their employment in this case. The ill consequences they were calcu-

lated to produce, were obviated by the use of slip knots; a point of practice, which, though obviously proper, has been sometimes omitted. But the case is brought forward principally to shew the value of free local bleedings in injuries of the brain. In order to prevent the possibility of the inflammation, that might naturally be expected to follow so serious an injury, and which would in all probability have proved fatal to life, I determined to produce, and keep up a state of debility, short of actual syncope, until the period in which inflammation might be expected was gone by. The successful issue of the case may, I think, be fairly ascribed to the adoption of this principle.

A SCROPHULOUS AFFECTION OF THE SCROTUM AND PENIS.

The scrotum may be affected with scrophula, and contract adhesions to the testis, while that organ remains free from disease. Whether in

such a case it is prudent to dissect out the diseased parts of the scrotum, and clear the testis from its morbid envelope, or remove the testis with the parts in which it is involved, is a question surgery has not yet decided. The only objection against the former practice is the impossibility of ascertaining the exact state of the testicle.

CASE.

Master ——, nine years old, and of scrophulous parents, had a strumous affection of the scrotum. From the adhesions of the surrounding tissues, the testis appeared to be enlarged, and was altogether massed with a heap of disorganized parts. The disease covered the whole of one side of the scrotum, and crossing the raphè had encroached upon the other. The under surface of the penis was also diseased. It was determined to extirpate the testis, and remove all the diseased integuments. After the operation, I was surprised, upon examining the morbid parts, to find the testis, although imbedded in a mass of scrophulous matter perfectly sound.

CASE OF SUBCUTANEOUS NÆVUS CURED BY PRESSURE.

In a valuable paper on Nævi Materni, in the Medico-Chirurgical Transactions,* Mr. Wardrop has shewn the great danger of extirpation, when the tumour is large, and the subject an infant. A case, in every respect similar to the one in which he operated with an immediately fatal result, occurred to me a few months before the publication of his paper.

As soon as the child was born, I perceived a tumour, of the bigness of half an orange, beneath the scalp, upon the occiput, and occupying the entire space between the ears. I had repeated opportunities of accurately examining the tumour afterwards. It was moveable, and evidently had no adhesion to the scalp. When the child was tranquil, it was soft and doughy to the feel; but as soon as it began to cry, the

* Med. Chir. Trans. Vol. IX. p. 203.

tumour was injected and turgid, and pulsated strongly. Having known infants die from a few leech-bites, any immediate attempt to extirpate a vascular tumour of this magnitude was out of the question. It was therefore determined to try the effect of pressure for the present. A compress dipped in a solution of sulphate of zinc was laid upon the tumour and kept continually wet. This was secured by a roller firmly bound, and in less than three months the tumour was obliterated.

TWO CASES OF SUB-CUTANEOUS NÆVI, REMOVED BY THE KNIFE.

BY H. S.

The appearance of the tumours, in the two following cases, corresponded with Mr. Wardrop's description of Sub-cutaneous Nævi, especially as being characterized by a purple hue, and by prodigiously expanding during a fit of crying. An universal pulsation was discernible in each of them; and their growth was rapidly

advancing. Lotions of all kinds availed nothing. Pressure could not be efficaciously applied. The knife, or ulceration artificially instituted, were the only alternatives. The latter was highly objectionable, not merely as being likely seriously to interfere with health, but as occasioning an immeasurable deformity. I determined therefore on extirpation.

CASE I.

The child was only three months old. It was born with a very obvious swelling situated in the triangular cavity between the eye, nose, and cheek. This increased so much, that, notwithstanding the child's extremely tender age, and the acknowledged tendency of operations to induce fits in infants, I risked its removal by the knife, with a view to arrest its progress and lessen future deformity. Besides, had it been suffered to run an unrestrained career, its magnitude might, at no great distance of time, have rendered an operation much more hazardous than at present. "When the bulk of the tumour is considerable," says Mr. Wardrop,

"the blood-vessels which pass into it are usually of a very large size, rendering the removal of such a tumour by the knife extremely dangerous." The tumour, when fully distended, was, at the time of its removal, as big as a small walnut. The skin being apparently diseased, I was obliged to dissect out the tumour with its integument. A large and ugly cicatrix was the result for a while; but subsequently this has so much contracted, and at the same time the features have so outgrown it, that in future life it will appear inconsiderable. The operation was performed July 21st, 1818.

CASE II.

This child was nearly a year old. The tumour was somewhat larger than in the former. Its site was much the same, except that it interfered less with the nose, and more with the eye, pressing forcibly on the lower eye-lid, and encroaching somewhat on the temple. In each case the diseased growth was on the left side of the face. The skin was perfectly healthy on this occasion, and therefore making a trans-

verse incision, I dissected its two flaps from the mass below. It required much time and the greatest delicacy to avoid cutting into the cells of blood, especially in separating the upper part of the tumour from its connection with the eye. Three or four ounces of blood might be shed during the operation; nevertheless I tied no vessels, but found the finger of an assistant sufficient to restrain them pro tempore, and they afterwards contracted of themselves. I brought the flaps together by a couple of ligatures; but the wound did not heal by the first intention. On the contrary, the skin sloughed away to some distance, leaving the interspace to be filled up by granulation. The cicatrix however is inconsiderable, and the deformity trivial. On examining the extirpated mass, I found it to consist, in the latter example, chiefly of cells and vessels, which when deprived of their blood shrunk into insignificance; while in the former it was infinitely firmer, having the consistence and appearance of a gland. This operation was performed Feb. 10th, 1820.

CASE OF IMPERFECT UNION OF A FRACTURED FORE-ARM CURED BY PRESSURE.

In his valuable Essays* on Surgery, Mr. Astley Cooper observes, "that pressure between the broken extremities of bones is necessary to their union;" and goes on to shew, "that if two broken bones overlap each other, on that side on which they are pressed together, there is an abundant ossific deposit; but on the opposite side, where there is no pressure, scarcely any change is observed. So also we find, if the ends of the bone be drawn from each other by the action of muscles, as sometimes happens in the fractures of the os femoris, tibia, os humeri, radius, and ulna, that union is not effected until the surgeon, by a strong leather bandage, tightly buckled around the limb, compels the bones to press upon each other, and thus support the necessary inflam-

* Vide Cooper's and Travers's Essays, Part II. p. 32.

mation for the production of ossific union." The principle appears to be a rational one. Of the utility of the contrivance I can speak from an experiment made upon my own person. About four years ago, in consequence of my horse coming down, my left fore-arm was broken about the middle. The fracture was oblique, and the point of the fractured radius all but pierced the skin. In order to secure the interval between the radius and ulna, that the important powers of pronation and supination of the hand might be saved, two firm compresses of calico were placed on the outer and inner sides of the fore-arm, when the swelling had subsided, and the splints were reapplied. As far as the articulation of the radius with the ulna was concerned, these compresses proved effectual; but their pressure forced the lower portions of the fractured bones somewhat asunder on each side, and prevented the accurate coaptation of the broken surfaces. Pressure on the middle of the arm was employed, in order to counteract this evil; but the intervention of the newly formed callus was

strong enough to resist its effects. At the end of the month the union seemed to be complete: the weakness I felt in the limb was ascribed to the emaciated condition of the muscles; and, anxious to resume my professional duties, the splints were laid aside. I expected that gentle exercise would strengthen the limb; contrary to my expectation, however, it became daily weaker instead of stronger. In mounting my horse, any attempt to rest the hand upon the pommel of the saddle gave exquisite pain, and the exertion of reining a somewhat restive horse was agony. Matters went on in this way till the expiration of six weeks from the time of my disusing the splints, when I accidently discovered that the union was imperfect, and the bones flexible. My friend, Dr. Simpson of Malton, happening to pass through Beverley the next day, I shewed my arm to him. He advised me to reapply the splints, rub the arm with a stimulating liniment, and increase the tone of the system, for my health had suffered from anxiety of mind, by the internal use of steel. Before I saw the doctor, I had written

to my brother, then a student of surgery in London, who described the case to Mr. Cooper. This distinguished surgeon did not advise the application of the splints, but recommended pressure to be made upon the bones, by means of an envelope of saddler's leather, furnished with straps, in order that the pressure might be increased and diminished as occasion required. As this plan was more convenient than the other, it was preferred, and succeeded perfectly. In a few weeks the bone was perfectly united.

CASE OF INFLAMMATION OF THE PENIS, WITH NATURAL PHYMOSIS.

A YOUNG man contracted a gonorrhœa, for which the usual means were employed; and as he had a natural phymosis, he was desired to keep in bed, and the penis enveloped in rag wet with the lotio lythargyri.

In about a fortnight, the discharge ceased and he was well. Three weeks afterwards,

owing to intemperance, he was seized with inflammation of the penis. The integuments covering this organ were injected and inflamed, and the scrotum as big as the head of a child. I suspected, at first, that the urethra had burst, and that the swelling arose from extravasated urine. Upon inquiry, however, I found he had no stricture, and, although his urine passed with difficulty now, it evidently arose from the pressure made on the glans penis by the injected prepuce.

A directory being introduced under the prepuce, it was divided to an extent sufficient to expose the glans, which was found shrivelled to a mere bud. Bleeding, leeches, and the rest of the antiphlogistic regimen, were then had recourse to, with the best effects. The patient voided his urine with ease, and the tumefaction of the penis and scrotum gradually subsided.

THE END.

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